

MOTOR AGE

FRAME UP A NEW AND BETTER ORMOND



TURNING THE FLAG IN THE 100-MILE RUN ON THURSDAY

ORMOND, FLA., Jan. 25—The Ormond-Daytona meet of 1907 is over. In good weather and a good time for the circuit-chasers it has been a record-breaker; from a racing standpoint, be it in the number and character of the entries or the character of the competition from a class and time standpoint, it has been a failure.

Shall there be another tournament? If so, when and what will be the character and eligibility limitation of the contests? To discuss and answer these questions Ass. Paine invited leaders in the racing game to a luncheon immediately following the conclusion of the week. Prominent among those present and taking part in the discussion were: Ass. Paine and John Parkinson, president and secretary of the F. E. C. A. A.; Louis

R. Speare, second vice-president of the A. A. A.; A. G. Batchelder, a director and member of the racing board of the A. A. A.; Alfred Reeves, manager of the American Motor Car Manufacturers' Association; W. J. Morgan, manager of the beach meets, and the following motor writers: J. C. Kerrison, Boston American; Howard Reynolds, Boston Globe; James McNamara, Boston Herald; Russell Fields, Brooklyn Eagle; Stanford Wilbur, Jacksonville Times-Union, and John C. Wetmore, Motor Age and New York Evening Mail, all interested parties.

The reasons for the failure of the present meet were frankly discussed. The consensus of opinion was that it was due primarily to the proximity of the date to those of the New York and Chicago shows and, to be candid, the prominence given the performances of the so-called steam freak machines.

It was agreed in the first place that the manufacturers must be satisfied in the matter of dates and of the limitation of the contests to cars closer to accepted and legitimate lines. As to date it was the consensus of opinion that there must be an intervening week or 2 weeks following the Chicago show.

The restriction of eligibility and the character of the races in general brought forth general debate and somewhat divergent opinions. There were those to argue that the mile was a standard racing distance and should be retained whatever provision might be made for long-distance competition. This was answered by the argument that it was this very glorification of the mile record that kept the

makers out this time. In this connection Reeves stated that what was wanted primarily was entries, and that to secure entries every personal predilection must be sacrificed or there would be no meet. Then came the suggestion that the early days of the meet be devoted to distance competition and the mile races and trials be put off to the last day. It was argued against this proposition that whether the mile racing came first or last, if the mile performances be made prominent there would be the same reluctance of the makers to make entries in the distance events. It was suggested that all entries in the open or so-called international races should be confined to machines that had competed in one or more of the great road races or the eliminating trials therefor. The further suggestion was made that there be added a separate class for cars



REEVES AND DAY, RIVAL MANAGERS, CONFER



NEWSPAPER MEN IN THE OLDS MUDLARK



R. W. HARROUN'S EIGHT-CYLINDER AIR-COOLED RACER

that had competed in the American eliminating trials in the Vanderbilt race, which would make a star event.

Neither of the above suggestions received unanimous approval. Finally a solution was offered that seemed generally acceptable and may be considered the final consensus of the conference and that was that a car to be eligible for the mile races on the last day must qualify by having won a place in one of the long-distance races or in a single long-distance race to be established for the purpose. It was suggested that the last named race should be of 200 miles and run progressively 100 miles per day after the manner of the grand prix of 1906, and that a car coming within the limit set for the first day or the completion of the race itself alone should be eligible for the mile contests.

In a word, the idea prevailed that the Ormond-Daytona tournament of future years should have in mind the development of motor cars along practical and accepted lines and that the annual beach meet should practically be a postscript to the Vanderbilt, grand prix and other big road races. Stock car races are also to be provided for.

Messrs. Paine, Batchelder and Morgan were appointed a committee to draw up a formal statement of the action taken. It follows:

"At a meeting of the Florida East Coast Automobile Association, attended by several officers of the American Automobile Association and also by representatives of the daily and weekly motor press, held today, it was the consensus of opinion that in future meets held on the Ormond-Daytona beach the competition should have particular reference to the endurance qualities of cars and their sustained speed. A late February or early March week was also recommended as the time for holding the meet. The drafting

of a program was referred to a committee to consist of President Asa Paine, of the Florida association; Jefferson DeMont Thompson, chairman of the A. A. A. racing board; S. A. Miles, general manager of the National Association of Automobile Manufacturers; M. L. Brock, assistant manager of the Licensed Association of Automobile Manufacturers; Alfred Reeves, general manager of the American Motor Car Manufacturers' Association, and W. J. Morgan, New York representative of the Florida tournaments."

CENTURY RACE A FEATURE

Ormond, Fla., Jan. 25—Fully 5,000 spectators gathered at Daytona and were scattered along the beach to witness today's races, the 100 miles contest for the Minneapolis cup proving a potent drawing card. It was an ideal day for an outing. The sun shone bright and warm and a gentle breeze blew from the ocean across the sand dunes.

There have been some memorable contests in these century races. In 1906 W. K. Vanderbilt, Jr., gave the trophy which was won by Harry W. Fletcher in 1 hour 18 minutes 24 seconds in an 80-horsepower de Dietrich. Last year the Minneapolis Automobile Club put up the present prize, which must be won twice to become the permanent property of the winner. The 1906 victor was W. Clifford Earp, who piloted an 80-horsepower six-cylinder Napier over the course in 1 hour 15 minutes 40% seconds, the present world's record. The feat was rendered still more memorable from the fact that he lost a rear tire around 40 miles and ran the rest of the way on the rim.

This year's contest had five starters. Only one of them had any pretensions to approaching high-powered racing caliber. This was a 70-horsepower American Mercedes runabout driven by E. B. Blakeley,

a Harvard graduate, now of the American Daimler Co.'s force of designers. The other four were out and out touring cars—a stripped 20-horsepower Rolls-Royce touring car piloted by R. A. McCready; two fully-equipped touring cars, a 50-horsepower Welch driven by L. H. Perlman and a 30-horsepower Wayne with A. L. Kull at the wheel, and Ralph R. Owen in the 30-horsepower Oldsmobile Pathfinder fresh from its trail-blazing jaunt from New York to Daytona and carrying two women as passengers. The summary:

100-mile race for Minneapolis cup—Won by E. B. Blakeley, 70-horsepower American Mercedes, 25:08; 40 miles, 35:44; 58 miles, 51:05; 70 miles, 1:01:15; 88 miles, 1:16:10; 100 miles, 1:26:10. R. A. McCready, 20-horsepower Rolls-Royce, second. Times—10 miles, 10:41; 28 miles, 29:16; 40 miles, 41:58; 58 miles, 1:03:39; 70 miles, 1:22:36; 88 miles, 1:47:03; 100 miles, 2:02:35. R. R. Owen, 30-horsepower Oldsmobile, third. Times—10 miles, 19:10; 28 miles, 53:05; 40 miles, 1:19:10; 58 miles, 1:44:52; 70 miles, 2:04:04; 88 miles, 2:30:00; 100 miles, 2:57:48. A. L. Kull, 35-horsepower Wayne, fourth. Times—10 miles, 12:42; 28 miles, 34:52; 40 miles, 49:49; 58 miles, 1:13:58; 70 miles, 1:58:50; 88 miles, 2:26:35. Stopped by referee. L. H. Perlman, 50-horsepower Welch, fifth. Times—10 miles, 12:13; 28 miles, 34:06; 40 miles, 48:55; 58 miles, 1:11:23. Gasoline gave out.

The race was a runaway for Blakeley and the American Mercedes, which made the run without a skip in 1 hour 26 minutes 10 seconds, an average of 69.4 miles an hour with seven rightabout turns. At 88 miles Kull was in third place with the Wayne, but was stopped by the referee as he passed the club house. There was an attempt to stop the Oldsmobile, too, but Owen and the newspaper men would have none of it and it went on on its exhibition demonstration to the end and was officially timed.

Perlman ran out of gasoline when away from his base of supplies. A kind friend pointed to two cans of the fuel at hand and he hastily dumped them into his tank. It proved, however, that one of the cans



CROWDS ON THE ORMOND BEACH

contained water and the mixture of the two did not furnish efficient or in fact any motive power. In rounding the turn at 49 miles McCready stopped for a few seconds to make an adjustment. This was the only hitch in the running of the Rolls-Royce touring car.

The opening event on the card was a 5-mile standing start race for stock touring cars listed between \$1,800 and \$3,000. It was won by A. L. Kull, 50-horsepower Wayne, who easily beat W. A. Adriance, 30-horsepower Stevens-Duryea, in 5:52 $\frac{1}{2}$. The other sprint race decided was a 10-mile handicap, which resulted as follows: Won by E. B. Blakeley, 70-horsepower American Mercedes, 45 seconds, time, 8:59; Dr. Stinson, 30-horsepower Franklin, 4 minutes 30 seconds, time, 13:04 $\frac{3}{5}$, second; Asa Paine, 30-horsepower Winton, 6 minutes, time, 13:34 $\frac{4}{5}$, third; H. E. Rogers, 25-horsepower Stanley, scratch, time, 9:10 $\frac{1}{2}$, fourth.

There were several mile trials. Fred Marriott drove the Stanley bug in 31 $\frac{1}{2}$ seconds. F. E. Stanley piloted a long-distance Stanley in 45 $\frac{1}{2}$ seconds, Walter Wray scored 50 $\frac{1}{2}$ seconds in a two-cylinder French Simplex motor cycle and G. W. Curtiss covered the distance in a Curtiss two-cylinder motor cycle in 1 minute 5 $\frac{1}{2}$ seconds.

In the evening L. H. Perlman, president of the Welch Motor Car Co., of New York, gave a dinner to the race officials, the officers of the F. E. C. A. A. and the newspaper-men at the Hotel Ormond.

MARRIOTT IN A WRECK

Ormond, Fla., Jan. 25—A serious and well-nigh fatal accident, which badly injured Fred Marriott and completely wrecked the Stanley bug, was the untimely wind-up of today's races and the tourna-



WHAT WAS LEFT OF THE STANLEY STEAMER AFTER THE ACCIDENT

ment itself. The events on the card had been finished and Marriott was in the midst of his third attempt to lower his own world's figures of 28 $\frac{1}{2}$ seconds for the mile when the accident occurred. His first try was a mere breather and netted him 32 $\frac{1}{2}$ seconds. A second attempt brought him nearer to the mark with 29 $\frac{1}{2}$ seconds. After a long wait, during which Marriott and Mr. Stanley overhauled and thoroughly adjusted the machinery for a last desperate effort, which Mr. Stanley told the writer he was sure would result in new figures, Marriott went south for his final trial. The beach was by no means good or safe for such high speeding as was in contemplation, but the game Yankee pilot was resolved this time to cast all fear to the winds and take chances.

Marriott came to the line like a missile from a catapult. He had but just crossed it when his car bounded in the air, landed sideways, skidded for 100 feet and then rolled over and over toward the ocean. In an instant the wreck was enveloped in a cloud of spray and steam and then there was a rush to the spot. The car literally had been torn to pieces, which were scattered in a radius of 100 feet. The boiler had rolled down to the surf intact. Marriott was pulled from underneath the wheels bleeding and unconscious, lifted into a touring car and hurried to the club house, where he was laid on an upper balcony while a physician examined him. The final verdict was that though his head was cut in several places and his body badly bruised there were no bones broken and the only ultimate and remote danger lay in the results of the shock, it being said that he had a weak tobacco heart.

The story a bystander tells is that the car itself and the bonnet seemed to lift from the ground aeroplane fashion through the force of the terrific wind impact, that Marriott reached forward to hold down the

bonnet, and that then the car skidded and turned over. Mr. Stanley says that in clearing a gully or rough spot the car leaped in the air and landed sideways, crushed its wheels and turned over. Marriott tells Mr. Stanley that when the car struck the rough spot he lost control and over it went.

The accident recalls the one on Staten Island several years ago when the Baker electric torpedo in jumping the car tracks got beyond the steering control of its pilot and dashed into the crowd. Two years ago Frank Croker met his death on this beach. He was endeavoring to get by a motor cyclist and in making a sudden turn his car would not skid over the damp sand. The wheels buckled and the machine overturned.

The races which preceded the accident were matches and club events, the scheduled program of open events having been completed yesterday. A 6-mile flying start match race between two 35-horsepower Cleveland runabouts was won by James Loughlin in 7 minutes 35 $\frac{1}{2}$ seconds, who beat R. M. Bond exactly 5 seconds. A flying start 12-mile duel between R. A. McCready in Captain Hutton's 20-horsepower Rolls-Royce and Dr. Stinson in a 30-horsepower Franklin was won by the former in 13 minutes 12 $\frac{1}{2}$ seconds. Bond's time was 14 minutes 32 $\frac{1}{2}$ seconds.

A 6-mile handicap for club members based on mile trials concluded the racing and resulted as follows: Won by James Loughlin, 35-horsepower Cleveland, 66 seconds, time, 8:08 $\frac{1}{2}$; R. M. Bond, 35-horsepower Cleveland, 50 seconds, time, 7:53 $\frac{1}{2}$, second; G. W. D. Rose, 30-horsepower Stoddard-Dayton, 83 seconds, time, 8:47, third. This was a good race.

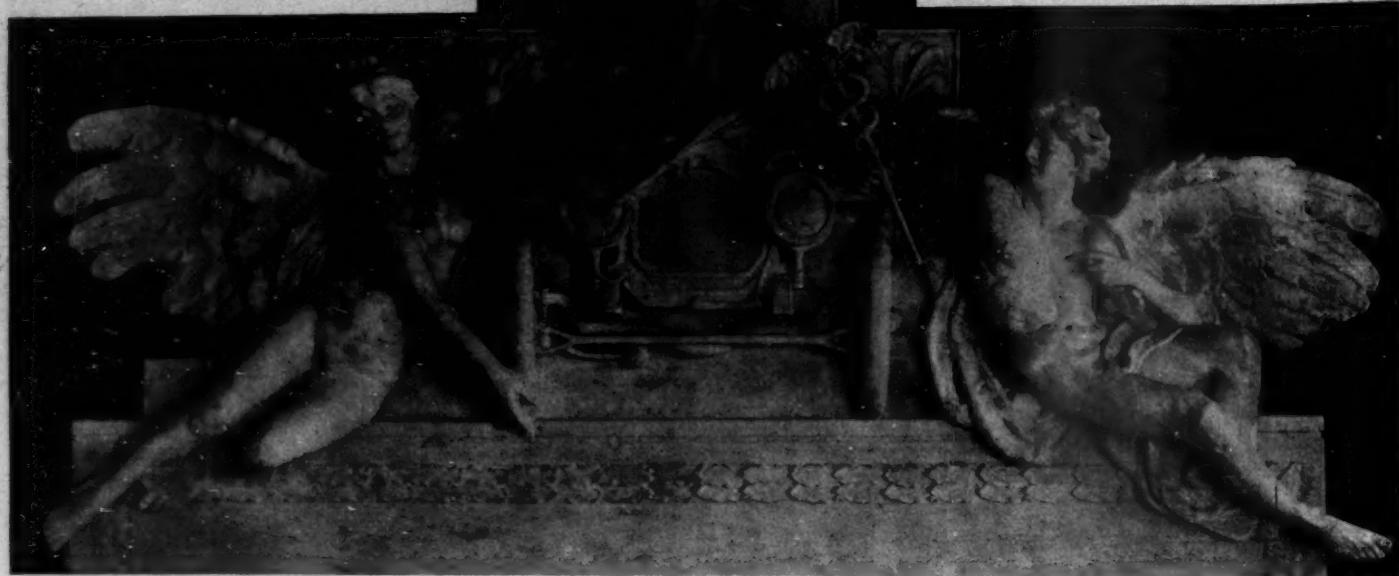
Loughlin beat Bond by less than three lengths. Walter Wray, of Brooklyn, riding a two-cylinder French Simplex motor cycle, made a mile in 44 $\frac{1}{2}$ seconds.



WAITING FOR A RACE TO START

CHICAGO SHOW EXHIBITS ARE

SO WELL ALONG BEING INSTALLED



IMMENSE FIGURE THAT WILL BE MOUNTED ON TOP OF EACH SECTION—EIGHTEEN OF THESE WILL BE USED

CHICAGO, Jan. 29—If the seventh annual Chicago motor car show is not complete in every detail when the doors are thrown open to the general public at 2 o'clock Saturday afternoon it will not be the fault of General Manager Miles and his army, for the work of converting the Coliseum and First regiment armory into motoring palaces was tackled earlier than ever it was before. Generally it has been along toward the fag-end of the week before the Milesians could get into either building, but this time General Miles speeded the parting guest and his huskies helped the electrical show out of the Coliseum Saturday night and Sunday with the result that the motor mob took informal possession of the place yesterday morning. This morning half the work of decorating the two buildings had been done and it was announced that tomorrow the work of installing the exhibits would begin. This in itself is a record, one of two General Miles has set out to break. The other is for attendance and judging by the general interest displayed by Chicagoans this is going to be an easy one.

A heavy task that confronted Mr. Miles was getting the balcony in the Coliseum shipshape. It was his idea to cover up the seats with flooring and give a perfectly level surface to the air annex. To do this it was necessary to elevate the floor 10 feet at the balcony rail, in itself no slight task. The huskies, however, delivered the goods and after supper tonight the carpenters had 150,000 feet of flooring and underpinning done. The decorations on the balcony also were complete.

Carpet layers got into the Coliseum this morning and by tonight had almost finished their tremendous task. All is system in this work under the watchful eye of

Louis Fest and as the carpet layers progress they are followed by the post men who do their little stunt space by space as they have opportunity to move. Coming after them are the sign board men and the rear guard consists of the staff workers. Taking advantage of every loophole, rapid progress is being made so it is no wonder General Miles complacently makes the prediction that everything will be ready by Friday night—or at least his part of it.

For several days General Miles has been puzzled how to settle the question of tags for out of town demonstrators. It will be remembered that last year the actions of the city in arresting drivers of tagless cars caused considerable scandal and for a time some of the angry exhibitors declared they would not come to the next show. Since that time the Miles brain has been working and the result was seen last night when the city council slid through an order making a special dispensation in this regard. It will grant special permits to the exhibitors and the passage of the order

was followed by the announcement from show headquarters that exhibitors can secure numbers at the office in the Coliseum for \$1 each instead of the usual \$3. These tags can be obtained after 2 o'clock Saturday afternoon and before 5 p. m. Tuesday. After that time the belated ones will have to go to the city hall and take out the regular permits. This new order of things is going to save lots of confusion and General Miles is grateful to the city for the courtesy shown.

Going over his books today General Miles discovered that there will be 103 or 104 exhibitors of motor cars—he cannot tell exactly for there is one lonely space which half a dozen are after. This means that there will be between 110 and 115 different makes of cars on exhibition, for some of the importers who have space will show several different makes. When it came to counting the exhibitors of parts and accessories General Miles gave up in despair. He had granted permission to those out in the cold to get under cover wherever they could discover an opening. The result of this permit is that it will be impossible to secure the exact number of exhibitors until the doors of the show are open and then only by making a stand to stand count. However, the general manager estimates there will be between 180 and 200 exhibitors of parts and accessories which will make the Chicago show a record-breaker indeed.

Several changes have been made in space allotments. C. A. Tilt, or the Diamond T Motor Car Co., as he is officially termed, has been moved from 144 in the annex to G 9 in the armory. The Duerr Automobile Co.'s place has been taken by the Chicago Coach and Carriage Co., which has been given G 8 in the armory instead of 145 in the annex. The Staver Carriage Co. now



LIGHT CLUSTER FOR SHOW DECORATION

has space 144 instead of 143, while the Triumph Motor Car Co. takes 142 and 143. The Dow Tire Co. gets space 146, while the Electric Storage Battery Co. moves from the west balcony of the annex to 56 in the Coliseum gallery. It is the space left vacant by the Duerr company that the half-dozen are scrambling for, but the general manager of the big show has not yet decided who will get it.

A year ago the general manager had it on his mind to conciliate the weather man by sending him a pass for the show. But he had lots of other things to think of and in consequence the weather man was overlooked. At the time he gave the general manager a gentle tip of the kind of bad weather he had in stock, but this evidently failed to make an impression at show headquarters. This year the weather man is pronounced in his hints. He sent a mild sort of a snow storm along today after a spell of zero weather and it is believed General Miles will take the hunch and produce. If he does not there is no telling what will result next week. However, Chicagoans are getting used to bad weather during the show—weather that generally is nipping and often accompanied by the only real snow of the winter. Every indication points to this sort of a spell next week, so a delegation will call at show headquarters and ask Miles to not overlook the weather man when he is issuing his passes.

The row now is in its gala dress. Hardly a motor shop is without some special attraction in the way of new cars and chassis which are waiting to be sent to the Coliseum. Most of them are New York show exhibits which have been sent on intact. A special train came in last Thursday over the Michigan Central which



AN ARCH DECORATION

brought forty-three cars, including a line of Columbias.

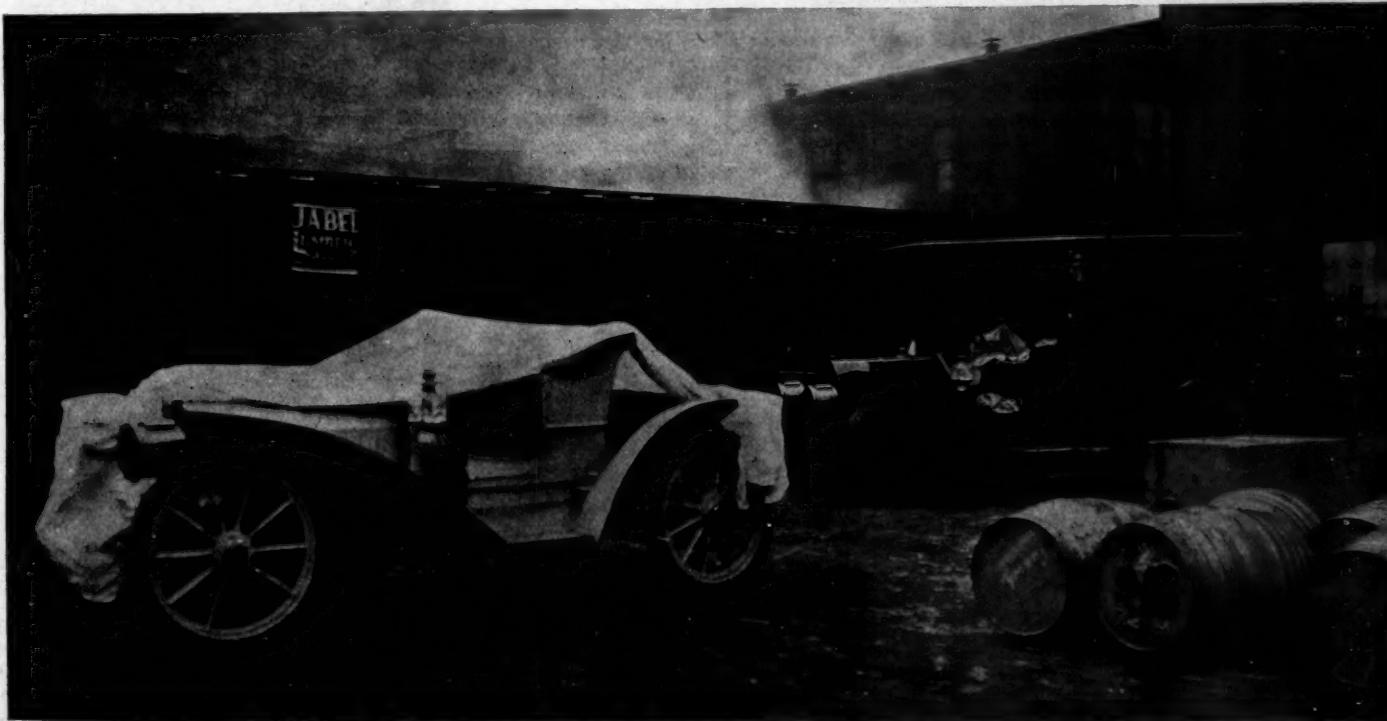
Going along the row the motor fan is struck by the display of high-powered roadsters. About every other shop has one in the front window or else prominently displayed on the floor. Vanderbilt racers, too, are much in evidence—the Locomobile, Matheson and the Haynes being the center of attraction. In the Pardee place one sees the American roadster, which looks good to many. At the Apperson there are the Apperson Jack Rabbit and the regular Apperson roadster. The Weber company has the Pope-Toledo roadster right in the front window so it catches all eyes. Fred Dayton also has the Columbia roadster as near the plate glass as he can get it—a creation in red with a rumble seat. Others of this type along the row are the Oldsmobile, Thomas Forty, Pierce, Cleveland, Berliet, Aerocar, Matheson, Dragon, Stoddard-Dayton, Packard, Premier and Buick.

The Ford Motor Co. will not be in the show, it having announced after the Grand Central palace affair that it was through with shows during this year and that at Chicago it would content itself with displaying its wares in its local branch which almost backs up against the Coliseum. Here Manager Hay is making his plans to entertain visitors during the week and show them the fine points of the Ford six-cylinder touring car and the four-cylinder

runabout. Several who asked for space and could not get it will have demonstrating cars outside the show, among them being the Hay-Burg Co., of Milwaukee, the Cornish-Friedburg Co., of Chicago, and the local concern which makes the Pullman. One of the features of the row during the week will be the light display made by the Rushmore Dynamo Works. This will be installed on the roof of their store at 1328 Michigan avenue, where there will be nine 18-inch electric navy searchlights, which will include the searchlight which has for a number of months past been used by this concern to flash up and down Michigan avenue at night. This will be in addition to the regular display of acetylene lamps in the Rushmore stand at the show proper.

The Chicago Automobile Trade Association, an organization which is made up of nearly all the local dealers in cars and accessories, has made preparations for a banquet at the Auditorium tomorrow night which is looked upon as a curtain-raiser to the show. Covers have been laid for 150 and the acceptances include men prominent in the trade as well as the sport side of the game. President Temple will officiate as toastmaster, while the guest of honor will be Mayor Edward F. Dunne. Among the speakers will be President Cobe and Secretary Gorham of the Chicago Automobile Club, Samuel A. Miles, general manager of the National Association of Automobile Manufacturers, Joseph F. Gunther, N. H. Van Sicklen and others.

The motoring forces from all over the country are beginning to gather in anticipation of a big business show. The advance guard is largely made up of publicity men, while several are working on stunts to attract attention.



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BECOMING DECENTLY LIBERAL

IHE authorities of the city of Chicago have awakened to the fact that the motor car and the motor car show are things in which the public is too deeply interested to permit them being passed over with slights and without the attention they deserve because of their popularity and importance in the industrial world. A year ago the visiting manufacturers exhibiting at the Chicago show were most contemptuously treated by the authorities in compelling them to march up to the city hall and take out licenses in order to run demonstrating cars on the streets for the period of a single week. This year the city council took the matter in hand and modified matters by arranging a special permit and number tag good for the week of the show. It is true small favors are thankfully received, especially by those having anything to do with the motor car, but as a matter of fact the act was a minute display of cordiality, particularly when the case is considered from all points of view. City councils of other municipalities would be only too glad to extend the hand of welcome without expecting a tip in return. Whatever may be said of the graciousness of the act, it must appeal to the visitor as an extremely small act of generosity on the city's behalf.

CHICAGO'S MOTOR CAR SHOW

EXPECTATIONS are pleasant—they help make the successes of the world. If expectations are to be taken into consideration the Chicago show, which opens in the Coliseum and First regiment armory this week Saturday night, will exceed anything of the sort ever seen in this country. Possibly the Chicago show will not surpass the last New York show in point of attendance, for that was a record-breaker, but from the purely trade standpoint there is every reason to expect the western exhibition to be the top-notcher. Whereas the trade is divided in the matter of the New York shows, it is united so far as Chicago is concerned, practically all of those who exhibited at both eastern affairs being numbered among those assigned space in Chicago, while the places of the few absentees have been taken by makers of cars and accessories exclusively from the west. The only reason the Chicago show will not be so large as the two New York shows combined is simply because of a lack of room in the two buildings to be used. Chicago has always been favored with the presence of large numbers of dealers and individuals from the middle

and extreme west, and these dealers and individuals attend the show not to look but to buy, for they have to travel too great distances and at too great expense simply for the purpose of feasting on things beautiful. With them it is a business proposition pure and simple. Chicago and the trade as well will be disappointed if it does not keep up its record as having a business show as well as an exhibition to instruct, encourage and amuse; and it will be disappointed if in the matter of appointments it does not easily surpass the Madison Square garden effort with all its costly daubery of unseasonable and out-of-place decorative suggestions.

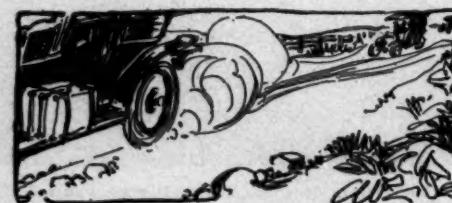
STRONG MEDICINE NEEDED

IT WILL require more than sugar-coated pills to revive the Florida winter beach racing carnival after the jolt it has received. Motor Age may be pardoned for calling attention to the fact that some months ago it suggested that the meet was not properly dated to assure its complete success, that the interests being served gave a flavor of too much business and not enough sport, and that the people really interested in motor car racing were not being catered to to the extent they should be in order to make the meet even satisfactory. Those who were credited with victories on the Ormond-Daytona beach this year won hollow honor at great expense, the great reputation of the winter meet has suffered and nothing has been accomplished for the benefit of motor car construction. Failure has been written all over the sands of the Florida coast—and all because of a determination to cater not to the wishes of the motorists but to resorters who annually flock to the south and who care as little for motor car racing as they do for snow flakes and zero weather. There is one way in which beach racing can be revived and made as successful as all wish it and that is for the American Automobile Association to take over the conduct of the contests and run them in the businesslike manner and with the sportsmanlike enthusiasm that characterized the handling of the Vanderbilt cup race. If there are to be races in Florida in the winter months to come individual interests must be cast aside and effort must

be directed toward a high class but purely sporting affair. These meets should not be permitted to collapse; the brains of the motor fraternity should be concentrated in an effort to save them—but to do so individual interests should be gracefully set aside and the aid of those who have at heart only the best interests of the racing game, the pleasure of the motoring fraternity and the welfare of the industry in general should be sought. The Florida meet has been the one affair in the winter to maintain deep interest in the motor car, both from the standpoint of sportsmanship and the trade. It has served to show the world what the American manufacturer has been able to do in the way of producing fast and reliable cars; it has been the means of convincing the public that it is not necessary to go abroad to secure speed monsters; it has shown that even if this country has failed to play even with the foreigner in big road events it can in other events. Because of all the good the meet has done it should not be permitted to die—but it will die unless heroic treatment is given the patient. The prescription has been written; it should be promptly filled, the bottle should be well shaken and the medicine should be administered in generous doses at least three times daily for 303 days. Then the doctors can issue their bulletin.

PASSING OF A WEAKLY

DMITTING failure, practically acknowledging misdirected effort and certainly showing evidences of mismanagement, Motor Way gives up its existence as a weekly to pass into another life—that of a monthly. Its ante-mortem statement under the caption of the "Passing of the Weekly" is, when read between the lines, a most magnanimous admission of failure, its one little redeeming quality being its audacity to suggest it has tenacity enough to exist in any form. No truer statement, so far as itself is concerned, was ever made than this by Motor Way: "Great changes have occurred in the automobile publishing field during the past year, and the weekly automobile publication has practically outlived its usefulness." This is one's own memoirs; but the author should have proceeded to compare the sparkling, energetic existence of a year ago with the hectic-cheek and dry cough life the publication has been compelled to endure for these several months past. The parting wail naturally suggests a great daily's serial "How I Lost My Job" or "I Would Have Won Had I Not Suffered a Break-down."





CURRENT COMMENT



SATURDAY will see the opening of the last of 1907 national shows, but not the last of the big shows, for Boston will have a big show, of that the public may rest assured. It is pretty safe to reason that in point of number of exhibitors and number of cars shown the Chicago affair will easily pass either of the New York shows, for it has a larger field from which to draw. It was current talk at the A. L. A. M. show that there was no startling amount of business transacted among the makers of cars, whereas at the Palace show the business is reported to have exceeded expectations. Chicago has always been known as a trade show, and the management believes the year 1907 will prove no exception to the rule. There is a great uncovered west that is clamoring for cars and it is just about the time of the year for western agents and retail buyers to place orders. The management does not look for startling figures from a local buying standpoint, but it will be disappointed if the sales to out-of-town people are not very large.

APPARENTLY the six-cylinder proposition is to be kept alive in England and on the continent if publicity and practical demonstrations will do the work. The chief English exponent of the six-cylinder, S. F. Edge, is out now to demonstrate what a car of this design can do in the way of consistent running and average time. He is to drive a car for 24 hours and expects to average 60 miles an hour. The 24-hour proposition is nothing in itself, for this trick has been performed many times, and as long ago as 1900, when

WEEK'S NEWS IN BRIEF

Chicago show management secures possession of Coliseum and First regiment armory early in week and will have everything in readiness for opening of show by Friday night; General Manager Miles expects between 110 and 115 different makes of cars on exhibition; slight changes among exhibitors.

First official alcohol test since passage of free alcohol bill is held under auspices of Chicago Motor Club, Henry Paulman's 45-horsepower Pierce Arrow making trip from Chicago to Cedar Lake, Ind., 50 miles, on 7 gallons 52 ounces of denatured alcohol; trip proves a success.

Ormond comes to an end after a dismal week which is marked by serious accident to Marriott in Stanley steamer; leaders in game meet and map out plans for a new and better Ormond under changed conditions which will probably eliminate freak machines.

Reliance truck is driven from Detroit to Chicago to be exhibited at the Coliseum show, the trip of 304 miles being made in 33 hours 49 minutes.

Circuit chasers move on to Palm Beach, Fla., for the motor boat racers, making the trip from Ormond by water. Simplex I stars of meet.

Dealers in Washington, D. C., open their show Saturday night, affair bringing out society in full force.



MARRIOTT, INJURED AT ORMOND

a little 5-horsepower Decauville went over a half century in that time. Whether Edge can average 60 miles an hour is another story; yet, it is not unreasonable. If the trick is turned, however, a record will have been established which will be superior to the records of the 18-hour trains between New York and Chicago, which average only about 57 miles an hour, and this with a change of engines about every 200 miles. Any such non-stop record will not be especially remarkable from the six-cylinder standpoint, for if a six can do it so can a four, demonstrated by the performance of the Thomas, which has a most remarkable record to its credit.

THOSE who were fortunate enough to have visited the A. L. A. M. show in New York a couple of weeks ago will be able to judge whether New York or Chicago shall carry off the prize in the matter of show decorations. If the Chicago show isn't awarded the blue ribbon, then the tastes of Messrs. Miles and Fest will have been shown to have deteriorated to an alarming extent during the past year.

PROSPECTIVE purchasers ought to receive some consideration at the hands of motor car show managements—originally the show was designed for the purchaser. But as a matter of fact the prospective purchaser has a pretty slim chance at a modern show and consequently the maker loses, too. The suggestion that one particular day be set aside for the purchaser and that an admission fee of \$10 be charged ought to meet with the approval of all. It ought to be Thursday, to give the prospective purchaser a chance to look around beforehand and to give the remainder of the week to the general public. But if a man actually purchases a

car, and can show the proper evidence of the purchase, he should be entitled to a refund of \$9.50. It will be found that some such plan will be necessary if the shows are to prove of value from the direct selling standpoint, for as it is now the crowds are so great as to preclude either buyer or seller from doing business, when the buyer is there to buy and the seller is there to sell. This is a pretty good thing for the show managements to get together on and talk over in earnest.

BECAUSE, for reasons explained elsewhere, Ormond did not play very heavily on the sensational; but to keep up interest a steam car had to cause the only excitement of the meet by bumping a bump, flip-flopping and finally breaking in two. The driver, Marriott, had expected this to be about his last race, for he had decided to give up this end of the game. As a matter of fact it came nearer being his last race than he had thought.

THERE is one satisfaction—denatured alcohol can be purchased, even if it does cost 50 cents a gallon. And there is further satisfaction in the knowledge that manufacturers, agents and just ordinary motorists are endeavoring to see what can be done with this fuel. While it was shown in a test made last Sunday in Chicago that it costs about 7 cents a mile to carry five passengers in a 35-horsepower car while using alcohol for fuel as against a little over 1 cent a mile with gasoline for fuel, there is a probability these tests will create such a demand as to bring down the price and make alcohol an available fuel.

COMING MOTOR EVENTS

February 2-9—Chicago show, Coliseum and First regiment armory. S. A. Miles, manager, 7 East Forty-second street, New York.

February 11-16—Tri-State motor car show, Light Guard armory, Detroit. Tri-State Automobile and Sporting Goods Association; E. E. McMasters, manager.

February 16—Italian motor car exhibition, Turin.

February 18-23—Buffalo show, in Convention hall, Automobile Club of Buffalo. D. H. Lewis, manager, Teck building, Buffalo.

February 23-26—Automobile Club of Italy, Coupe des Voiturettes.

March 9-16—Fifth annual show of Boston Automobile Dealers' Association, in Mechanics' hall and Horticultural hall. Chester I. Campbell, 5 Park square, Boston, manager.

March 20-27—Nice, automobile week.

April 2-15—Monaco meeting.

April 6-13—Montreal, Canada, second international motor car and sportsman's exhibition. R. M. Jaffray, manager, 309 West Notre Dame street.

April 18-20—Targa, Florio, in Sicily.

April 25-28—Touring competition, under auspices of the Automobile Club of Turin.

April 28—Chateau Thierry hill climb.

FIRST OFFICIAL ALCOHOL TEST IS HELD



DRAWING OFF THE ALCOHOL AT CEDAR LAKE, IND.

CHICAGO, Jan. 28—What is claimed to be the first official test of alcohol for motor fuel since the new law went into effect January 1 removing the tax from the denatured product was made yesterday under the eye of the technical committee of the Chicago Motor Club when a 45-horsepower Pierce Arrow made the trip from the New Southern hotel at Thirteenth street and Michigan avenue, Chicago, to Cedar Lake, Ind., following the course used in the gasoline economy test October 18. The big machine made the 50.3 miles on 7 gallons 52 ounces of denatured product and did it so easily the experts on the trip declared it to be an unqualified success. Carrying five people, the total weight of car and occupants was 4,675 pounds, estimated.

For some time Chicagoans have been discussing the possibilities of alcohol as fuel but no definite arrangements were made for pulling off such an event. Finally Henry Paulman, the local Pierce agent, became interested. His car had won the economy test over this route and it was pointed out to him it would make an interesting comparison to make the same trip using alcohol. He thought so too, but unfortunately he could not get hold of the 30-horsepower Pierce which he used in the gasoline trial. However, he decided to use his demonstrating rig, a machine that had pounded over Chicago roads for some 20,000 miles. Of course he had to do some experimenting before he could make the jaunt in order to discover how the Pierce carburetor took to the new fuel. At that time none of the local retailers of fuel had any denatured alcohol in stock. They told him he would have to buy the alcohol himself and then denature it. This promised to make it a costly experiment but Paulman was game and he purchased 10 gallons of grain alcohol at \$2.70 a gallon for experimental purposes.

Paul Hoffman, who drove the Pierce when it made the fastest time in the Algonquin hill-climb and who was at the wheel of the Pierce that won the gasoline economy test last October, was selected by Paulman to do the experimenting. The driver worked away on this costly stuff until the conclusion was forced home that it would be necessary to choke the auxiliary intake valve on the carburetor and cut down the size of the intake manifold one half. Convinced the car could make a creditable showing, Paulman set about finding some of the real denatured alcohol, the kind that did not cost \$2.70 a gallon. Finally he found a place at Wabash avenue and Fifteenth street where the stuff was put up under government inspection at 50 cents a gallon. Incidentally it might be mentioned that since that time a local wholesaler has offered to supply denatured alcohol at 27 cents a gallon wholesale, which shows that the distillers are awake to the possibili-

ties opened to them by the new law. Buying 15½ gallons of denatured alcohol Paulman sent out his invitations which included David Beecroft, chairman of the technical committee of the Chicago Motor Club, E. G. Westlake, sporting editor of the Chicago Evening Post, and a representative of Motor Age. J. V. Lawrence of the Paulman company was in the party, while Paul Hoffmann was selected to drive. Yesterday was selected for the trial and at 10:20 o'clock in the morning the Pierce party started out. A better day could not have been furnished by the weather man. It came right after a cold snap during which the thermometer had gone below zero, and at a time when there was no snow. In consequence the roads were rutless and hard as macadam. There was not a trace of dust and the only kick the experimenters had coming was on the wind which was decidedly sharp. Still, everyone was bundled to the limit and with a wind shield and a top on the car they felt they could defy the weather man to do his worst.

The trip was decidedly uneventful the first half. The mazes of South Chicago were successfully negotiated, Hammond was made without incident and then the car swung into the road leading to Hobart. Just before the party came to the turn in the woods which leads off to Crown Point the car was brought to a standstill because of a frightened horse. When Hoffmann attempted to start again he failed to get any results. Investigation showed that in wrapping the piping the night before to protect it from the cold he had knocked off a cotter pin from the throttle. This proved easy to fix and again the party went on. The town scales at Crown Point were closed so no stop was made, Hoffmann pushing on to reach the finish at Cedar Lake, some 6 miles away. This was an easy task and on the old familiar spot where the economy run of last October ended Hoffmann stopped, while the technical committee got busy determining the result of the trip. It was 12:25 p. m. when the journey was ended, which showed that the big car using alcohol for fuel had made the trip at 25 miles an hour and that without Hoffman making any extra attempts at speed.

Taking the 4,675 pounds as the estimated weight through the inability to get the exact figures at Crown Point the pencil developed the fact that under the formula used in the gasoline economy test in October the alcohol-driven Pierce had earned a rating of 2.46, which would have beaten two of the cars in the former contest. Compared with the work of the little Pierce in that affair the big Pierce yesterday used 7 gallons 52 ounces as compared with 2 gallons 23 ounces of gasoline, the technical committee discovered.

In preparing the carburetor for the de-



BURNING THE EXTRA ALCOHOL

natured alcohol test not more than 40 hours of time extending over a period of 2 weeks was required and most of which was done at odd moments after the work of the regular day was over. First the pressure feed on the fuel in the tank was removed and the float was raised nearly $\frac{1}{4}$ inch. Following this came the complete cutting off of the auxiliary air intake valve and the changing slightly of the spraying nozzle. With these adjustments was coupled that of reducing the diameter of the intake manifold to the cylinders one-half, accomplished by inserting in the pipe immediately above the carburetor a wooden spool. With this in place the motor suction had the effect of creating a swifter current of mixture to the cylinders resulting in less condensation of mixture, which condensation was further prohibited by wrapping the intake pipes with common cloth. It is interesting in passing to note that the wrapping was due primarily to the length of these pipes and that in motors with short intakes such would not be necessary. In starting the motor the first few days previous to the test gasoline was used in priming and on the morning of the run the car was run for 30 minutes on gasoline and then brought into the garage where it stood for another hour before starting.

Before the engine was started $15\frac{1}{2}$ gallons of denatured alcohol were poured into the tank. Then a little gasoline was used as a primer and the car went off on a quarter turn of the starting crank, but owing to the presence of a flat tire the motor was stopped for 5 minutes after which it made its first alcohol start on the spark. In running the car the throttle lever on the steering wheel was given a three-quarter advance whereas with gasoline a half lead is sufficient. Coupled closely with this part of the control was the giving of the spark lever a three-quarter lead where a half lead suffices for gasoline. When running on variable road surfaces with the carburetor adjusted for alcohol it was impossible to slow the car down to a 5-mile pace on high speeds. At such times the motor would choke and when in meeting horse vehicles where a sudden slow down was imperative, the danger of choking appeared stronger than ever. Traveling at from 10 to 40 miles an hour the car behaved beautifully, running softer than it did on gasoline on the return trip. In a few 8-percent grades which were hit at a speed of not more than 10 miles per hour it was surprising to see how the car would accelerate on the grade while running on high speed. In ascending grades, however, where a start of less than 10 miles was made the driver was compelled to drop to a lower speed, the carburetor adjustments being such as not to permit of gaining on the high. The pulling of the motor throughout was steadier than that on gasoline and even with the imperfect fuel combustion possible with the improvised carburetor not the slightest odor was perceptible. In



MEASURING THE ALCOHOL

the average running of the test motor pounding was an impossibility but was possible with the grade of gasoline used.

As to the grade of denatured alcohol made use of laboratory tests have not yet been completed other than that the boiling point of the fuel was 174.2 F. and that of the gasoline used on the return journey 193.1 F. The day was frosty, the mercury averaging throughout the trip 20 above zero. The out trip was into the wind all of the way. No precautions were taken for increased or decreased cooling other than covering one-half of the radiator front with a stiff paste board to keep the water temperature as high as possible, but at no time did it reach the boiling point. There was from start to finish little missing, in fact not so much with the alcohol as with gasoline, due to one of the plugs sooting very badly on the home run. With the alcohol when slowing down there would be occasional explosions but they were limited to half a dozen at least in

the 50-mile run of the car to Cedar Lake. Throughout the run the problem closely connected with the use of alcohol proved to be that of vaporizing the fuel at a reasonable speed and the prevention of condensation before the mixture reached the motor. Closely connected with this was the ever-present flooding difficulty. These might be remedied by the arranging for all intake air coming from close to the exhaust pipes and not taking cold air through the auxiliary air port or valve. Experiments have proven that if air is taken in at a uniform temperature of 86 F. and maintained at that temperature through the carburetor and until it enters the intakes, that no trouble due to condensation will occur, this depending on the mixture traveling at a good speed to the cylinders. Without a knowledge of the percentage of water in the alcohol, which generally exceeds 10 percent and without knowing its specific gravity, it is impossible to arrive at any important deductions as to its heat-producing qualities, but reasoning from the results of experiments made abroad it is known that in combustion a certain quantity of alcohol gives out 5,500 calories of heat and a similar quantity of gasoline 11,000 calories, meaning that from this point of view gasoline is doubly valuable compared with denatured alcohol. The vital problem is what percentage of these heat units can be transformed into useful work at the rear wheels and in this regard the good alcohol motor has shown an efficiency of 32 percent in its crude stage of perfection and the average gasoline engine, after almost a decade of improvement, has an efficiency of 20 percent. Putting into alcohol engines the effort that has been bestowed upon gasoline styles there is little doubt but their efficiency can be considerably increased.

Now that the ice has been broken it is expected other Chicago cars will be sent over the course to earn a rating under the new fuel. The Silent Knight, which was the second water-cooled car in the October test, is a candidate for honors.



PASSENGERS SERVE AS FUEL PACK TRAIN

INNING FOR THE MOTOR BOATS

Circuit Chasers Enjoy Pleasant Trip by Water to Palm Beach, Where Racing by Speedy Craft Keeps Them Interested—Simplex I Stars First Day—Mishap Tuesday

Palm Beach, Fla., Jan. 29—Special telegram—The second stage of the annual Florida motor racing circuit had its beginning today in the start of the third annual regatta of the Palm-Beach Motor Racing Association. There has been a considerable overflow of circuit-chasers of Ormond. They have been coming in by rail and boat ever since Sunday. The motor pilgrims started from Ormond for the most part by water. Senator Morgan carried the larger contingent, including the dozen or more newspaper men who are following the racers, to the number of thirty in all, in the motor boat Cherokee, while on the Uncle Sam was a party of fifteen gotten up by Walter C. Baker, Ralph R. Owen and Ray M. Owen. It was a beautiful sail the Cherokee party had. All went well down the Halifax and Hillsdale rivers, all hands enjoying immensely the sight of the palms and tropical scenery on the land side, the pretty villas on the strip separating the ocean from the river and the many yachts and motor boats that were encountered enroute to the regatta. Not long, however, after entering the Indian river the engines stripped their gears and the Cherokee had to put into Titusville and leave the tourists to shift for themselves. Some put up at a typical southern hotel over night and went boating and fishing in the morning. Others pushed on by train to Rockledge, the scheduled night stop, and met the Baker-Owen crowd which took several aboard the Uncle Sam and continued the voyage, reaching here late yesterday afternoon, after a stop-over at Fort Pierce Sunday night.

These tourists report a beautiful ride down the Indian river. All the circuit-chasers, by the way, have gone yacht and motor boat crazy and there will be quite a flotilla of motor craft to take in next year's southern circuit by water all the way from Jacksonville to Miami, a voyage of 300 miles. The regatta proved a potent attraction and the hotels are today for the time of the season appreciably filled. Up to today there are fourteen racing boats on hand and half a dozen more are said to be enroute down the Indian river. The regatta already is voted a success.

There were two races this morning and three this afternoon. Lake Worth presented a pretty picture, being alive with gaily-decked yachts, house boats and other craft, while the pier was thronged with onlookers. Simplex I, a Smith & Mabley boat, piloted by H. Broesel, of the firm, scored three victories, winning both races for boats rated under 80 horsepower and also the 10-mile free-for-all. In the 10-mile race this morning for the big boats

Dixie, owned by J. Schroder and fitted with an S & M Simplex eight-cylinder engine of 132 horsepower, after covering the first round at the rate of 28.3 miles an hour quit on the second owing to a hot bearing. It will be ready, however, to race tomorrow and will try for the world's mile record, which is a fraction over 29 minutes and is held by the Standard with a record of 2 minutes 10 seconds with and 2 minutes 36 seconds against the tide, a mean of 2 minutes 22 seconds. Katherine, owned by J. Middleby, of Boston, and Simplex seem to be the fastest boats here outside of the big Dixie, which is to be sent to England next year to try for the Harmsworth cup. Summaries:

Eighty rating and under, 4½ nautical miles:

Boat and Owner	Allowance	Elapsed time
Simplex I, Broesel, Jr.	1:06	17:44
Hot Stuff, B. J. Southall	1:01	19:12
Possum, H. E. Willoughby	Allows	18:48
Errand Boy, G. E. Andrews	1:52	20:42
Blanche II, C. J. Coggins	0:01	19:51
Baby Bullet, G. F. Paddison	4:50	25:35
Mera, W. I. Huffstatter	0:03	22:52
Kloto, T. A. Snyder	3:26	26:56
Planet, W. V. Covar	7:12	37:28

Eighty rating and over, 9 nautical miles:

Boat and Owner	Allowance	Elapsed time
Katherine, J. Middleby, Jr.	4:18	28:37
*Gray Wolf, H. Willoughby	5:48	30:41
Bruiser, J. K. Clarke, Jr.	2:52	31:28
Dixie, E. J. Schroeder	Disabled

*Disqualified for cutting.

Eighty rating and under, 4½ nautical miles, afternoon:

Boat	Allowance	Elapsed time
Simplex I	1:06	17:22
Possum	Allows	18:24
Hot Stuff	1:01	19:41
Baby Bullet	4:50	22:57
Blanche II	0:01	19:36
Errand Boy	1:52	51:33
Mera	0:13	22:05
Planet	7:12	35:42

Eighty rating and above, 4½ nautical miles:

Boat	Allowance	Elapsed time
*Gray Wolf	1:28	14:51
Katherine	0:43	14:12
Bruiser	Allows	14:19

*Disqualified for cutting course.

Boats of all ratings, 9 nautical miles:

Boat	Allowance	Elapsed time
Simplex I	8:56	34:29
Katherine	1:26	28:13
Gray Wolf	2:56	30:46
Baby Bullet	14:24	44:32
Bruiser	Allows	31:05
Blanche II	6:46	38:07
Errand Boy	10:28	31:50
Possum	6:44	40:24
Mera	7:10	42:36

The handicapping today was based on the load water line and on Thursday will be on the actual time scored the two preceding days. On Friday the regatta will conclude with the mile race for the Dewar cup. The carnival of Venice, a night fete in which all the boats on the lake will be decorated and illuminated and Paine's fireworks will be set off, probably will take place on Thursday night. It now looks as if Morgan would pull off after all his flag-to-flag race from Miami to Nassau. There

have already been six entries of high-powered motor yachts and boats now at Miami. The United States torpedo boat Scorpion will accompany the race, which will be run in controls so the boats may be kept as close together as possible. For the first quarter of the way for a distance of 47 miles there will be pretty rough going. Then follows 90 miles over shoal water, followed by deep-sea going again.

Palm Beach, Fla., Jan. 30—Special telegram—Fine racing, good handicapping and a sensational accident resulting in the sinking of two of the racing boats, marked the second day of the regatta. E. J. Schroeder's Dixie, whose injured bearing had been repaired overnight, won two impressive victories in its class and wound up the day by a magnificent run in the 15-mile open from scratch, finishing third, less than a minute behind the winner, which had completed a lap of the 5-mile course before the Smith & Mabley flyer had started. Dixie showed an average of 28.45 miles an hour for the 15-mile course, with five turns, as against the world's record of 29.17 miles an hour, held by Standard. At the conclusion of the morning racing, as Katherine and J. H. Clark's Bruiser were circling around among the fleets, Bruiser ran across Katherine's bow and was practically cut in two by her. Both boats sank at once. Mrs. Clark, who was aboard Bruiser, had her dress caught in the machinery and had to be cut loose as the boat sunk. The bow of Katherine was crushed, but she was raised and can be repaired. Summaries:

Boats under 30 feet, load water line—Starters by actual time, distance 5 miles:

Boat and owner	Time
Mora, W. I. Hoffstetter	20:59
Planet, W. V. Covar	35:28
Blanche II, C. G. Coggins	19:20

Boats over 30 feet, load water line, distance 5 miles:

Boat and owner	Time
Dixie, E. J. Schroeder	22:08
Katherine I, J. Middleby	28:16
Gray Wolf, S. L. Willoughby, Jr.	30:32

Boats under 30 feet, distance 10 miles:

Boat and owner	Time
Errand Boy, G. E. Andrews	39:49
Mora, W. I. Hoffstetter	41:31
Baby Bullet, G. F. Paddison	44:55

Boats under 30 feet, distance 5 miles:

Boat and owner	Time
Dixie, E. J. Schroeder	11:08
Gray Wolf, S. L. Willoughby, Jr.	15:12
Simplex VIII, Smith & Mabley	18:45

Free for all, at 15 miles:

Boat and owner	Time
Errand Boy, G. E. Andrews	59:15
Mora, W. I. Hoffstetter	62:11
Dixie, E. J. Schroeder	62:51

The regatta will last 2 days. A 200-mile endurance race to Daytona, with a night control at Rockledge, will be started on Saturday. The Miami regatta will follow and the race to Nashua will wind up the circuit.

THOMAS CAR ALMOST AT GOAL

Chicago, Jan. 30—Information came today to C. A. Coey, local agent for the Thomas flyer, that the Thomas non-engine-stop car which is enroute from New York to Chicago, reached South Bend, Ind., at 4 o'clock this morning. It had been a tough battle against adverse weather con-

ditions, so E. R. Kelly, who is driving the car, concluded to lay over for a day and rest after his strenuous experience. He will start on the last leg of the journey early tomorrow morning and hopes to get to Chicago, 110 miles, by noon, when he will be greeted by a local delegation. The Thomas car started on its non-engine stop stunt at Harrisburg, Pa., January 2, during the Quaker City Motor Club's reliability test. From that time the engine kept running up to and all through the New York show to near Utica, N. Y., where the carburetor was clogged by a bit of waste. This stopped the engine for 40 seconds, but that was enough to put a crimp in the record run. At that time the motor had been running continuously 21 days 3 hours 29 minutes, which is far in excess of any previous attempt. After the stop Kelly concluded to keep on to Chicago, according to his original intention and exhibit the car during the Chicago motor car show week.

U. S. INVESTIGATING ALCOHOL

Washington, D. C., Jan. 26—With a view of determining principally what changes, if any, are necessary in the gasoline engine to adapt it to the use of alcohol, and to investigate further whether it will be economical and practical for the farmer to make use of the new fuel, the department of agriculture has carried on an extensive series of trials and experiments. These tests have established the fact that it is quite possible to use alcohol in any engine designed for the use of gasoline, although that use may be decidedly uneconomical unless certain changes are made in the carburetor and in the compression pressure. Another important fact developed by the tests was that fuel economy, whether the fuel is gasoline or alcohol, is quite largely a matter of adjustment, and from the discussions of this matter it is probable the running cost of such engines may be very materially decreased by exercising a little care.

TRYING THREE FUELS

New York, Jan. 28—The Maxwell-Briscoe people this morning started three two-cylinder Maxwell touring cars on a trip to Boston to test the comparative values of kerosene, denatured alcohol and gasoline as fuel. The cars were driven by H. A. Grant, Charles Fleming and E. Toner. Accompanying them were S. Y. Black and H. S. Sawyer, of the Automobile Club of America and others. The three cars reached Bridgeport, Conn., in 4 hours and Mr. Grant felt confident that all three cars would reach Boston without difficulty in a little more than the usual running time for such a trip. During the first quarter of the trip the unusual fuels produced surprisingly consistent results, especially in the case of kerosene, which is generally considered at a great disadvantage in the regular gasoline motor cars owing to its carbonizing tendencies.

SHOW AT THE CAPITAL

Washington Dealers Open Their Exhibition and Have Plenty of Space for Display

Washington, D. C., Jan. 28—It is regarded as peculiarly appropriate that the seventh annual show of the Washington Automobile Dealers' Association, which opened tonight with considerable eclat, should be held in a garage. The scene of this year's show is the Dupont garage, located on M street, in the heart of the residential section, and its floors afford plenty of space for the display of more cars than ever were gathered together under one roof in Washington.

As early as 7 o'clock, when the doors were opened, the crowd began to straggle in, and by 8 o'clock, when Robert B. Caverly, president of the Automobile Club of Washington, was introduced to officially open the show, the garage was packed with a crowd of motor car enthusiasts. President Caverly made a very clever address that was received with rousing applause. Little attempts at decorating have been made and there is nothing to detract the attention of visitors from the cars themselves. However, the lighting scheme is a work of art. The garage couldn't be made lighter unless it were set on fire. Arc lamps and incandescents have been used to such good advantage as to give a light of 15 candlepower for each foot of space. While the garage is a three-story building, only the two upper floors are used for exhibition purposes. The aisles are wide and while tonight's crowd is of ample proportions there is no jostling.

As usual, a number of exhibitors could not get their cars here in time for the opening. The National Automobile Co., which handles the Oldsmobile, Buick and Studebaker electric, was without a single car for the opening night, but it expects to have something to show before the week is out. George P. Sacks is anxiously awaiting two models of the Cleveland, and a number of other cars that were scheduled for this show have not yet put in an appearance. Space for seventy-two cars was booked, and of this number fifty-eight are shown on the two floors, twenty-seven different factories being represented.

Large and imposing displays are made by the Cook & Stoddard Co. and the Pope Automobile Co., of Washington. The former has twelve cars on exhibition, embracing the Pierce Arrow, White, Franklin, Cadillac and Baker electric. The Pope company is showing two models each of the Pope-Toledo, Pope-Hartford, Pope-Waverley, one Pope-Tribune and two Locomobiles, one of which is a racing car. In addition to the Locomobile racer, LeBlon's Thomas racing car is at the show, being a part of the exhibit of the Motor Car Co.

The happiest man at the show tonight was Herbert Lytle, the Pope-Toledo driver.

It was all due to the fact that he was received this morning by President Roosevelt, who plied him with questions about the motor car business. Lytle was introduced to the president by Representative Southard, who represents the Toledo district in congress. President Roosevelt convinced much interest and Lytle embraced the opportunity to give the president all the information he could about motor cars. Lytle extended an invitation to the president to take a ride in a Pope-Toledo, but the president hesitated for fear it would resolve itself into an advertising stunt. Lytle promptly met this objection by suggesting a night ride about Washington, and Mr. Roosevelt partially promised to accept. It is a cinch the newspaper men will not be notified in advance. The exhibitors:

Pope Automobile Co. of Washington
Commercial Auto and Supply Co.
Washington Electric Vehicle and Transportation Co.
Cook & Stoddard Co.
Motor Car Co.
National Automobile Co.
Dupont Garage Co.
George P. Sacks
Auto Supply & Storage Co.
Charles C. Hughes & Co.
Carter Motor Car Co.
Hamilton Automobile Co.
Charles E. Miller & Brother
J. R. Thomas
Charles F. Fleming
Automobile Tire and Repair Works
National Electric Supply Co.
C. W. Hamilton
Rudolph, West & Co.
Electric Storage Battery Co.
Pennsylvania Rubber Co.
F. N. Cycle Co.

PITTSBURG SPACE GONE

Pittsburg, Pa., Jan. 28—Unless all signs fail the people of Pittsburg and vicinity will be treated to an agreeable surprise when the projected show opens at Duquesne garden April 8. While it was expected there might be some difficulty in disposing of the large area set aside for motor car purposes exclusively there is now not a section of it left and belated applicants are being turned away. It is claimed that in gross sales of cars in 1906 the city ranked third in the country. Its twenty-eight motor car dealers and 5,000 car owners are viewing with each other in the effort to make the coming show a triumph in every respect.

LONG GRIND ENDED

Baltimore, Md., Jan. 26—The 100-hour test of the Stoddard-Dayton machine, which ended at midnight Tuesday, was a thorough success. The motor was stopped only once during the entire test and this was due to the accidental kicking off of the electric switch. It happened just 1 hour before the time limit of the trip. During the 100 hours that the machine was in operation 1,275 miles were covered. The feature of the test was the run to Hanover, Pa., a distance of 102 miles. Frederick Upton, E. L. Leinback and G. R. Rastall were in charge of the machine during the long distance trip.

MOTOR CAR SHOP KINKS



Babbitting Old Bearings

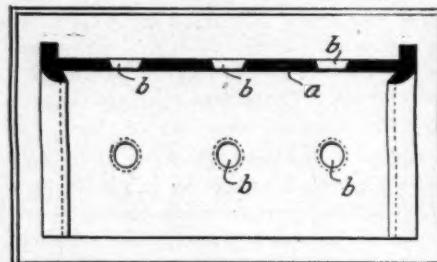
In Shop Kinks in Motor Age last September 13 it was pointed out that the ordinary method of shimming a split bronze bearing causes it to be irregularly supported, with the result it settles and deforms under its load and presently works loose. The method of squeezing the bearing to a new and smaller outside circumference and surrounding it entirely by the shim is practicable if carefully executed and the bearing trued up outside to an accurate cylindrical form. It is, however, impracticable if the bearing is badly worn. In general it may be said that it is much better to fill a bronze bushing with babbitt or white brass when it becomes worn than it is to shim it up. This is true not only because a more accurate job can be done, but because the filling metal itself if properly treated is at least as durable as bronze if not more so, and has the further advantage of a lower coefficient of friction on the steel shaft. Treating the babbitt metal properly means, aside from the necessary requirements of accuracy, that the babbitt shall be condensed by pening after it is poured, and shall subsequently be bored and scraped just like a bronze bushing. In a shop where engines are regularly manufactured the proper method would be to put the babbitted bronze bushing into a die and draw a taper mandrel through it in a hydraulic press, the mandrel being lubricated and having substantially the finish diameter of the bearing. Such a bearing does not have to be machined at all, and it has the most durable surface it is possible to obtain in anti-friction metal. Nevertheless, a small shop can compress babbitted bearings by pening so they will be good for 8,000 or 10,000 miles with proper lubrication, whereas the same bearings not compressed would require refitting after 4,000 or 5,000 miles, and probably would loosen by the simple flowage of the metal before it would wear out.

The process is substantially the same whether the original bushing is of bronze or whether it is lined with babbitt metal. In the former case, however, the bushing will need to be counterbored and prepared to receive the babbitt, whereas in the lat-

ter case it only is necessary to melt out the old metal and clean and tin the bushing. The complete process with the necessary variations is as follows: It refers only to split bushings, since evidently the solid form cannot be pened inside. If the bushing was originally all bronze, the halves should be clamped or bolted together, chucked approximately true, and counterbored as shown at a in figure 1. This counterbore should be $\frac{1}{8}$ -inch deep, or as near to that as the thickness of the bushing will permit. The body of the bushing should be drilled with a number of holes *bb*, and these should be countersunk as shown. The ends of the counterbore also should be slightly undercut, as the drawing shows, to help hold the babbitt in place. If the bushing was originally babbitt-lined, the old metal is melted out. In any case, the bushing thus prepared is cleaned thoroughly and tinned all

ing to the metal used. As the metal at the surface is of course the hardest after pening, it should be an object to remove as little as possible by boring, and the diameter of the mandrel should be chosen with that in mind. The accuracy of setting the mandrel will also affect the result to be obtained.

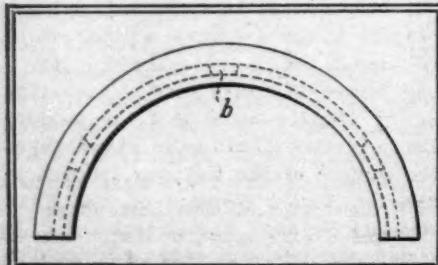
With several bushings to be babbitted and bored, it is better to use the milling machine than the lathe for boring, as it is nearly impossible to chuck a bushing dead true. Even if this is done, there is a chance of error owing to wear of the shears of the lathe. A simple and accurate method of holding the bushings in the milling machine is as follows: Before the bushings are tinned they are put in the milling machine and flat spots *a*, figure 2, are milled at right angles to each other in both flanges. Assuming that the outer diameter *c* is the same for all the bushings, the distance of the flat spots *a* from the outside of the bushing should be the same for all the bushings, and similarly the distance *e* should be constant. If the bushing is split the spots *a* should be parallel to the plane of the split, but this particular process is applicable to solid bushings also. The bushing is now tinned and filled with babbitt as above described, when it will have the appearance shown in figure 3, and the spots *a* *a* *b* *b* will have constant distances from the center line of the bushing, and therefore will serve to locate the bushings for boring. Now arrange on the platen of the milling machine a fixture like that shown in figure 4. Two parallel strips *a* *b* are provided, of which the former is located parallel to the arbor by straps *c* *c*. The strip *b* is not necessary, but is convenient in case the flanges of the bushings try to enter the T-slots *e* *e*. A stop *d* is provided, and the bushing is located with the spots *a* *a* downward and the spots *b* *b* against the strip *a*. The bushing is located by means of the bolts *f* *f*, through which are tapped the set screws *g* *g* *h*, of which the former slant downward sharply and the latter slope slightly upward. It is not necessary to solder the bushing together if split. The first bushing is located for boring by trial and



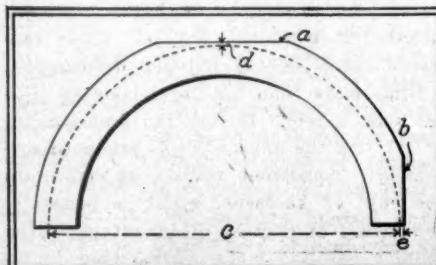
BABBITTING BEARINGS—FIGURE 1, DIAGRAM 2

over by being dipped in a bath of melted solder. Next the two edges are wired together with strips of paper between them and projecting inwardly to prevent the two edges from being joined by the babbitt metal. The bushing is supported on asbestos and a mandrel about 3-16 to $\frac{1}{4}$ -inch smaller than the shaft is supported centrally inside. The bushing is packed around with fire clay, heated by a torch nearly to soldering heat, and the babbitt metal poured. It is of course set with the split vertical, and the metal is poured on both sides of the paper strips. Use only a good grade of babbitt or white metal.

When cold, the bushing is first filed externally to smooth it and bring it to a true cylindrical form. If required, shims may be soldered to its split faces. As it will be a little large on account of the tinning, it may need to be forced home with a wooden or fiber block and a hammer. After each half of the bushing is properly seated and supported in its bearing, the babbitt metal is condensed by liberal pening, first with a heavy hammer directed so if possible it will not strike twice in the same place, after which a lighter hammer is used to even the surface. This pening process will increase the inner diameter of the bushing from 1-16 to $\frac{1}{8}$ inch, accord-



BABBITTING BEARINGS—FIGURE 1, DIAGRAM 1



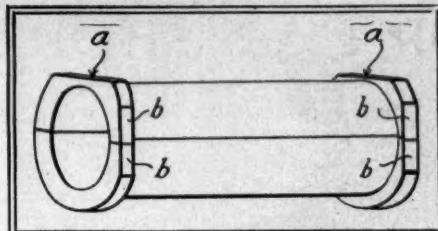
BABBITTING BEARINGS—FIGURE 2

error, and all the others will evidently come right at once without change of tool or setting.

Of course the shafts should be ground, turned or lapped and filed true before the bushings are bored. In the case of crankpins, which wear slightly flat on the outer face, a good workman can restore the surface to true cylindrical by dressing it with a fine Swiss file, using calipers frequently and finishing with fine emery cloth and oil. The bushings are bored to about 0.01 inch of finish size and finished by scraping. The sides are relieved to facilitate lubrication—say $\frac{1}{8}$ inch down on each side of the loaded half and $\frac{1}{4}$ inch on the cap. Oil holes are drilled and oil grooves cut—only in the unloaded half, however; the loaded half should be left perfectly plain—and the job is complete.

Six-Cylinder Valve Timing

As the suction strokes of a six-cylinder engine overlap each other like the impulses, there is a tendency, if all the cylinders take their mixture from a single carburetor, for the cylinder whose piston is moving faster than the other to draw air from the latter when the inlet valves of both are open at the same time. Thus it follows that the six-cylinder engine does not develop nearly the power it ought to unless some means be provided to offset



BABBITTING OLD BEARINGS—FIGURE 3

this tendency. One plan is to use two carburetors, but this introduces complications. A better plan, if circumstances will permit, is to design the inlet valve cams so that the lift of the valve is, at any moment in the stroke, proportional to the velocity of the piston. If this is done, the velocity of the mixture through the valves will at all times be approximately the same, and the suction just outside the valves will also be the same.

Fitting Tapered Keys

There are two principles which may be followed in key-fitting. One is to fit the key at the sides only and treat it as a member in shear. The other is to fit it at top and bottom and consider it as a wedge, which causes the hub of the flywheel or gear to bind frictionally against the opposite side of the shaft. Either plan of fitting the key gives good results if the

key is large enough, but probably it is in most cases easier to disconnect the parts if the key is fitted at the sides. If the available length of hub be short, it will be necessary to use two keys, which should always be placed 90 degrees apart around the shaft, never opposite each other. If the keys are opposite each other it results in the hub being unsupported except by the keys themselves, whereas, if they are quartering, the hub is supported by the shaft opposite the keys as well as by the keys themselves. To drive the key in easily, rub chalk on both surfaces.

Protecting Gearbox Bearings

Plain bearings in the gearbox are apt to be cut—long before the bearings are worn out—by steel grit worn from the gears. Such bearings are properly oiled by separate oil wells, or through direct feed from a mechanical oiler. If they show a tendency to cut, the gritty oil from the interior of the gearbox may be prevented from getting into the bearings by the use of felt washers pressed into undercut grooves at the inside end of the bearings, and these grooves may be made specially when the car is taken down for repairs. If the bearings are oiled by internal splash, the oil must be filtered by passing through strainers over the top of the oil pockets and through wicking into the pockets.

TOURIST TROPHY RACE FOR HEAVY TOURING CARS

London, Jan. 19—There will be two Tourist trophy races run this year instead of one as heretofore, the demand for the second one being so great the powers that be could not overlook it. So this has resulted in the announcement this week that there will be a heavy touring car race with the idea of encouraging the development of touring cars such as are usually fitted with covered bodies. As described, it will be like the Tourist trophy race but for a larger type of carriage, consequently the cars are given a more generous allowance of fuel but have to carry a much heavier load. A fuel limit is imposed. Besides this the Automobile Club of Great Britain and Ireland intends promoting a vapor emission competition with the object of encouraging the improvement of the design in existing gasoline-driven cars in order to diminish the nuisance caused by foul exhaust.

Comparisons of the two Tourist trophy races show the difference. In the new race the fuel limit is 16 miles to the gallon as against 23 for the other one. The minimum load which the chassis is to carry is to be 2,240 pounds—that is to say, 1 ton instead of the 12½ hundredweight with which the first Tourist trophy cars are loaded. There

are other differences, such as 36-inch wheels instead of the 32-inch, a body platform length of 8 feet 6 inches instead of 7 feet 6 inches, and so on, but the two vital differences are the fuel and the load, with one important addition. All the heavy touring cars must carry wind shields. With this and one or two other minor exceptions the regulations for the two races are identical. The distance of the heavy touring car race will not be less than 250 nor more than 400 miles as compared with 150 and 300 in the other. Otherwise the rules of the two contests are the same, including the hill test of holding the brakes on one and six.

Another comparison is afforded by studying the following table which shows how the gasoline allowance per ton mile

has been reduced since the race was inaugurated by the automobile club:

	Load in lbs.	Miles per gal.	Fuel per ton mile
1905.....	950	22.5	.105 gal.
1906.....	1,125	25	.079 gal.
1907.....	1,400	25	.064 gal.
	2,240	16	.0625 gal.*

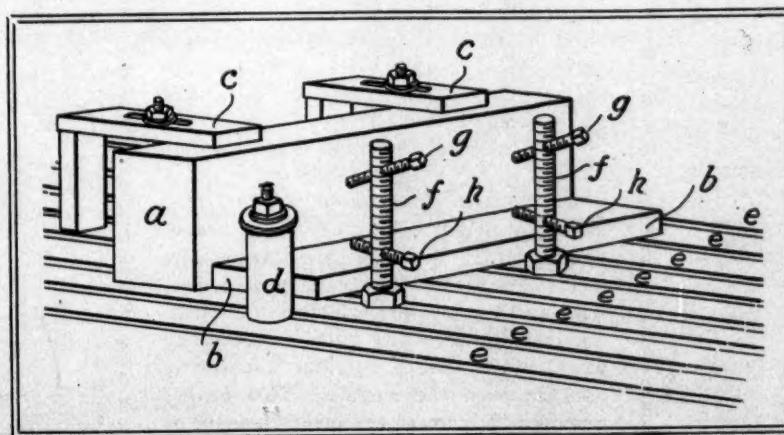
*For the heavy touring car race

In the vapor emission test the competition will be divided into two parts. The first one will be a road test of about 150 miles. The judges will observe the cars and cause the same program to be carried out by each competitor, and will note the results. During the test a gas analyzing apparatus will be fixed to each exhaust. The awards will be made in consideration of the following points:

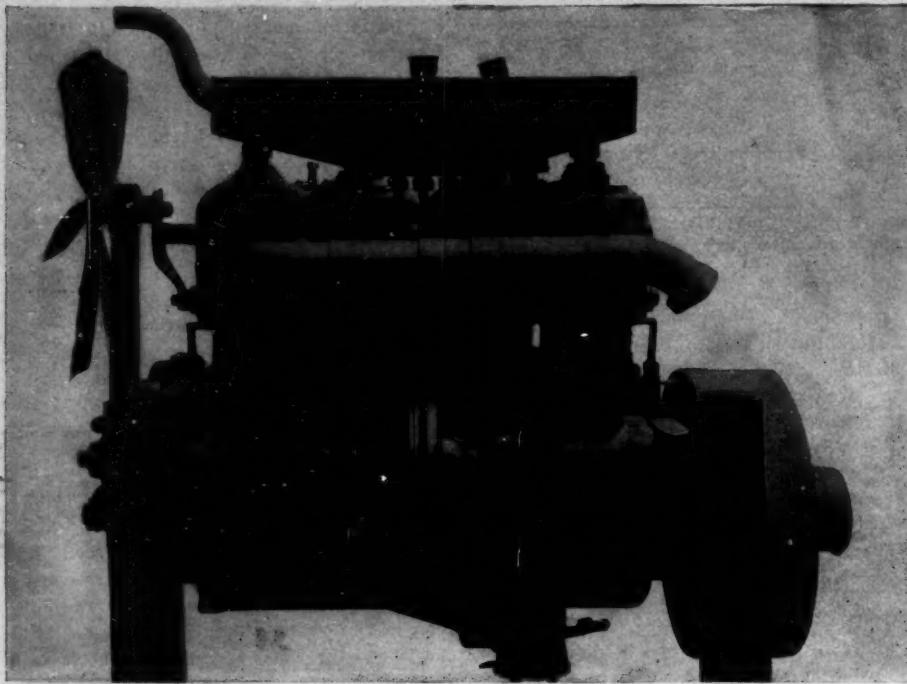
The car which, independently of the skill or care of its driver, gives an exhaust least offensive to the public using the road.

The car best constructed to enable the driver by reasonable care to obtain continuously an inoffensive exhaust.

The best system or device to enable the driver to observe continuously the nature of his exhaust, such as a small bypass to observe part of the exhaust, or a mirror to observe the whole while the car is running.



BABBITTING OLD BEARINGS—FIGURE 4



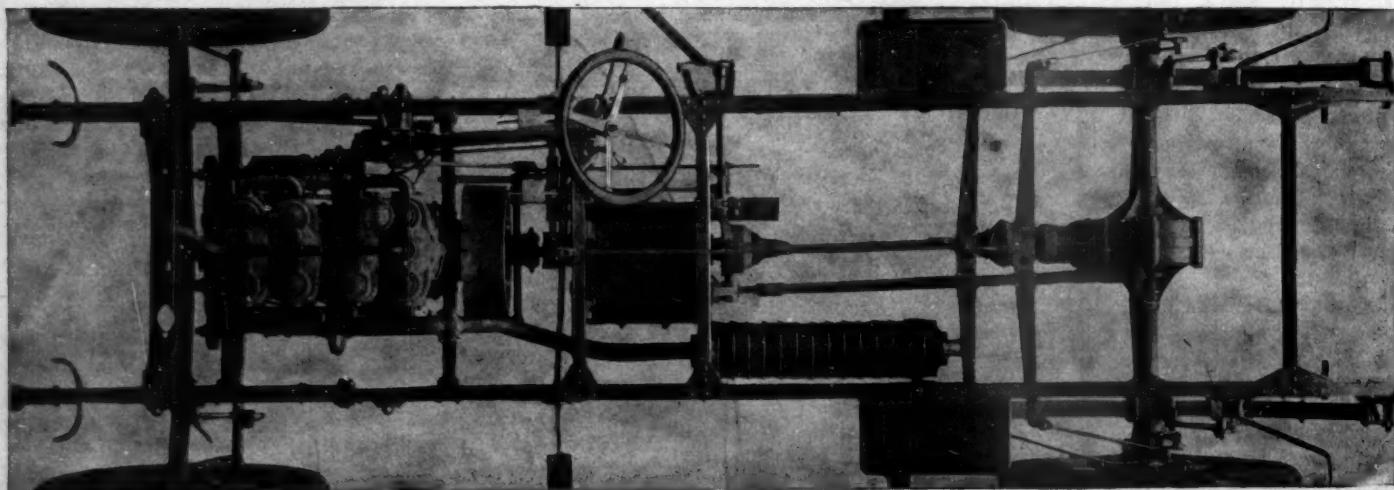
PIERCE MOTOR WITH ITS LARGE GRAVITY FEED OILER

A CAR with 30-horsepower and $4\frac{1}{4}$ and a $4\frac{3}{4}$ -inch bore and stroke respectively, a 45-horsepower machine having the bore and stroke 5 and $5\frac{1}{2}$ inches and a 65-horsepower car with cylinder dimensions the same as in the 45 comprise the line of Pierce Arrow cars for 1907 as manufactured by the George N. Pierce Co., Buffalo, N. Y. The 30 and 45-horsepower machines are four-cylinder cars and the 65 is the six-cylinder Pierce that made its debut in the Glidden tour when it made a favorable impression which has continued up to the present. The Pierce company follows last year's practice of using separately-cast cylinders with valves carried on opposite sides, intakes on the right and exhausts on the left. Retained also by the company is the cone clutch and progressive type of sliding transmission giving three speeds forward and one for reverse, with power communication to the back axle by cardan shaft. While it is true that the skeleton, as it were, of Pierce

machines remains unaltered, there have been many changes in the 45-horsepower car in the various appurtenances connected with these leading parts. To enumerate: In connection with the motor there is added a new carburetor, a double system of ignition in connection with which is noted the introduction of a high tension magneto, a new motor suspension, variable diameter water pipes, gravity feed of gasoline to the carburetor, compression relief connected with the exhaust valves to facilitate starting, belt-driven fan, elimination of the governor acting on the carburetor throttle, and a redesigning of the valve ports so that now the intake and exhaust manifolds unite at right angles with the ports instead of at an angle of 45 degrees as formerly. To continue this enumeration with reference to other parts of the car, attention is directed to a new Mercedes style of steering knuckle replacing the Lemoine type of last season, and carrying the gearbox suspended be-

MOTOR CAR PIERCE

neath a couple of channel crosspieces of the mainframe, dispensing with the use of a subframe. In this connection is marked the departure of the Pierce people from using straight side pieces in the main frame. These now are brought together $1\frac{1}{2}$ inch alongside of the motor. There is a brake improvement whereby an equalizer is used and in which all of the brake connections are carried inside of the chassis frame instead of outside of it and passing through the fenders as was the case in past models; and increasing the wheelbase from 109 to 124 inches, by which means 4 inches additional room is furnished between the dash and front seat and 15 additional inches between the front and the tonneau seat and the back of the front seat. Another change in the running gear is the carrying of the radiator 2 inches further back and placing the front axle 3 inches forward. Instead of a jaw coupling between the clutch and gearbox a universal joint is fitted. The frame side pieces which last year had a vertical depth of $4\frac{1}{2}$ inches have this measurement increased to $4\frac{3}{4}$ inches with a gradual end taper to $2\frac{1}{2}$ inches in depth. Four-inch pneumatics are used on the front wheels instead of the $4\frac{1}{2}$ -inch sizes of the past season. The diameter of the wheels remains at 36 inches. Hess-Bright bearings are used throughout in the transmission. In the 30-horsepower machine all of these changes are in vogue with the exception that Hess-Bright bearings are fitted only in the transmission set, the rear axle and road wheels still being carried on ball bearings of the cup and cone style. The wheelbase has been lengthened from 107 to 112 inches, and, as in the 45-horsepower car, the body is carried $1\frac{1}{2}$ inch lower without reducing the clearance of the machine. The common practice followed by many American makers of increasing the cylinder

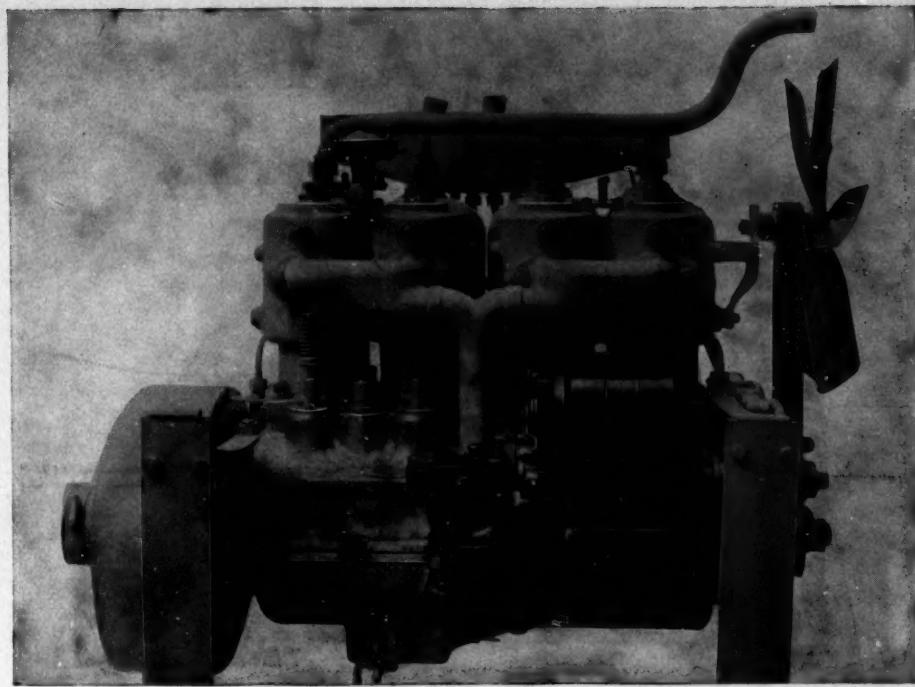


PLAN VIEW OF PIERCE CHASSIS, DISCLOSING NEW BRAKING EQUALIZERS ACROSS THE FRAME

DEVELOPMENT ARROW

bore and stroke has not received any attention whatever at the hands of the Pierce company which believes that the power of its three models during the past season was sufficient for all conditions. Constructions common to the 45 car are used also on the 65-horsepower, six-cylinder.

In passing into detailed consideration of the many parts of the Pierce car, the motor naturally merits first attention. As used for four seasons the cylinders, after undergoing a machining process, are ground to a smooth finish. In order to reduce the length of the motor as much as possible the water jackets are flat on the adjacent sides of the first and second and third and fourth cylinders. The practice of using interchangeable intake and exhaust valves continues, each set being made with a diameter of $1\frac{1}{8}$ inches, the valves made with cast iron heads with the seats beveled at 45 degrees, and the steel valve stems screwed, riveted and brazed into the heads. The push rods operating the valves carry at their lower ends hardened steel shoes of large size instead of the standard rollers so generally used. It must be said in this regard that the Pierce company has continually adhered to this large shoe construction for several seasons and makes the claim that no trouble is caused by wear on these parts. Before departing from this valve consideration reference is made to the caps over the valves which consist of three parts: A cover resting on a shoulder in the bottom of the opening and having between it and the shoulder an asbestos-filled gasket; a cover nut above this which is of sufficiently loose fit in its threading to the cylinder head to permit of its being unscrewed by hand; and lastly a cap screw passing through the cover nut and resting upon the center of the valve cover. A half-turn of this cap screw is sufficient for tightening the cover.

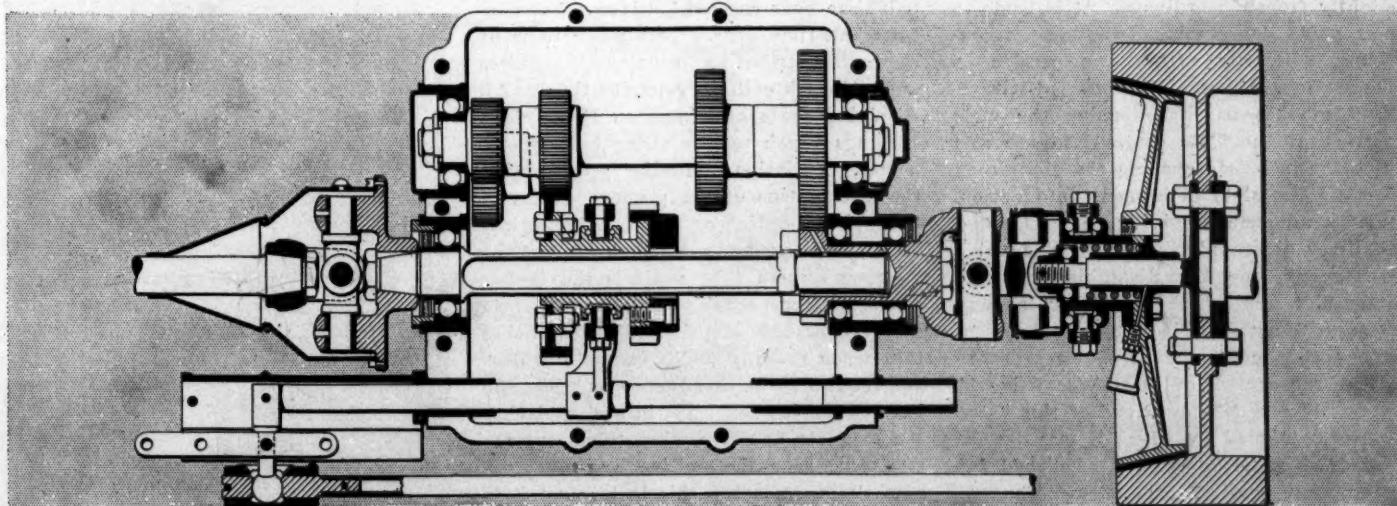


NEW CARBURETER AND MAGNETO ON PIERCE MOTOR

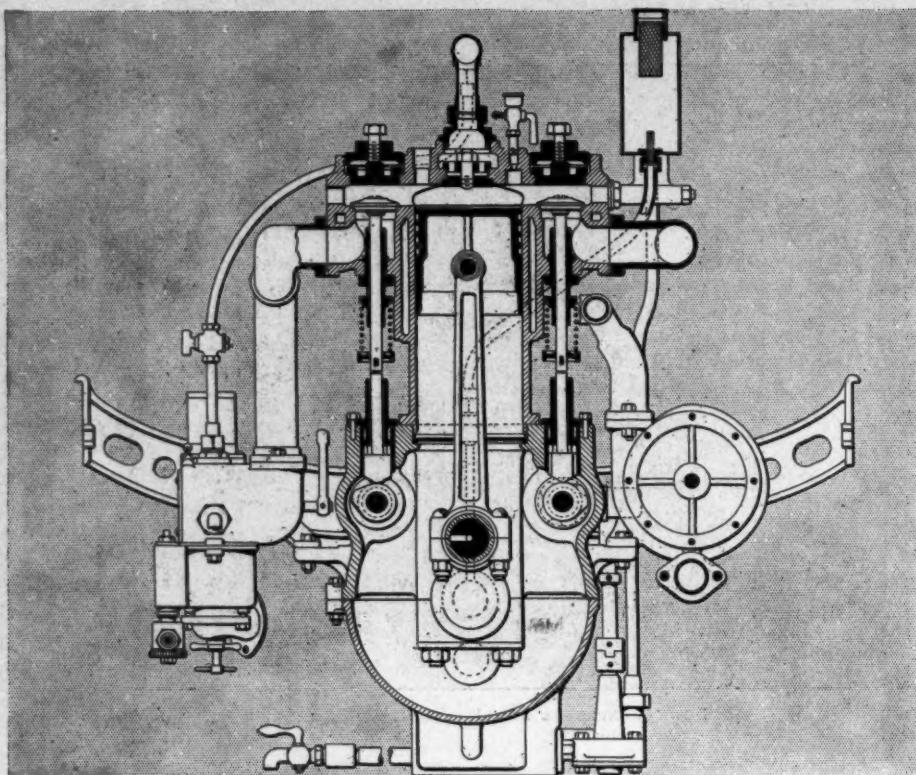
The lubrication system common to these cars for several seasons remains unchanged. As illustrated it is a gravity feed one in which a large oil reservoir is carried above the cylinder heads on the left side. From this three leads pass, one to each of the crankshaft bearings. Besides lubricating these bearings these leads also supply the lubricant for the lower bearings of the connecting rods, a condition accomplished by boring the crankshaft from its bearings to the bearings of the connecting rods. The scheme of supplying oil to the large reservoir over the cylinder heads is one of a continuous circuit not unlike the circulation of the blood in the human body in that the oil is used over and over again, being purified by filtering after each circuit. In the base of the crankcase is a low oil compartment and in communication with this is a gear oil pump, seen in the left side of the motor illustration opposite the two rear cylinders, and driven by vertical shaft and

worm and gear off the exhaust camshaft. This pump forces the oil into the reservoir above the cylinders from which it drains back by gravity as already mentioned and later returns to the pump. In connection with this reservoir is a glass gauge on the dash on which at all times is indicated the oil level in the reservoir.

The new Pierce carbureter as per illustration shows how decidedly different it is from that used in the past in that the governor-controlled throttle is lacking, and the auxiliary air valve, which formerly was under the control of the dash pot, is now subject only to the tension of a spring surrounding its stem. In glancing at the sectional illustration of this carbureter A indicates the entrance for air, B that for gasoline, C marks the passage to the cylinders, D is the auxiliary air entrance, G the revolving barrel throttle controlled from the steering wheel and F and E indicate respectively the water entrance and exit for supplying the jacketed portion of the



IN THE PIERCE SLIDING TRANSMISSION A UNIVERSAL JOINT IS PLACED TO THE REAR OF THE CLUTCH



SECTIONAL END VIEW OF PIERCE MOTOR

mixing chamber. New in this carburetor with the Pierce people is the concentric float L made in the form of a ring with the needle valve M in the center of it and the float acting upon the gasoline valve O by means of a short lever R pivoted with its short arm acting on the valve O, thereby giving very sensitive regulation. To insure prompt closing of this valve O with any rise in the float a small spring surrounding its stem is added. The air entering through A before reaching the nozzle passes through a coned opening K, the peculiar shape of which focuses the air current at the tip of the valve M, thereby aiding in the mixing of the gasoline with the air. From this point the mixture passes in a direct vertical course through the V-shaped opening in the base of the throttle G, thence directly to the intake manifolds. The auxiliary valve differs slightly from the ordinary. It is made to seat at 45 degrees but has its sides continued vertically within a projection of the seating. These sides are filled with V slots so that on first opening the wide portion of the slots comes into use and with the increased opening the diminished part of the slots is brought into action, this arrangement giving a graduated auxiliary air supply. Beneath this valve is a screw stop H, adjustable from the other side and which can be set at any position to act as a final stop to the opening of this auxiliary valve. In order to render the control of the needle valve M especially easy the lower end of this valve carries a T head by which it may be adjusted. The lock nut N is furnished for retaining the desired adjustment. The carburetor is carried 5 inches lower than

formerly and feed from the fuel tank now is by gravity, the use of exhaust pressure being dispensed with. A brass tube Z is provided for depressing the float when starting.

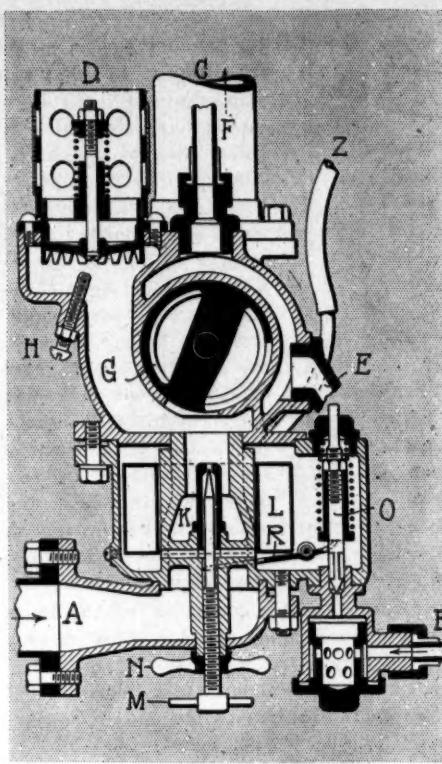
This is the first year this concern has used a double ignition system, each system entirely independent of the other and having its own set of spark plugs. Carried over from last year is the old storage battery system, having a four-unit coil on the dash and with a timer carried well above the cylinder heads between the two rear cylinders on the right. The plugs for this system are carried vertically in the cylinder heads immediately inside of the valve caps. The magneto system includes a Bosch high-tension magneto carried on a bed on the right side of the motor opposite the two forward cylinders. Magneto drive is from a separate gear carried within the half-time gear case and driven off the intake half-time gear. This magneto is of the self-distributing type and requires neither spark coil nor separate timer. All revolving parts of it run on Hess-Bright bearings which require oiling but twice a month. Variation in timing is by causing the interruption of the primary circuit to take place earlier or later. This is affected by the same small lever on the steering column that controls the timing of the battery spark, the only difference in the operation of this small lever being that when running under magneto it does not require so much advance as when the battery is in use. To insure replacing the magneto properly when taken out for any reason, the flywheel is stamped "magneto." In replacing this instrument it is necessary to turn the flywheel around in

the direction it runs until the inlet valve of No. 3 cylinder begins to close, when it is necessary to get the magneto mark on the flywheel exactly opposite the pointer attached to the crankcase.

The cooling system remains much as formerly save for the adoption of the new centrifugal pump of very large diameter carried centrally on the left side and driven by separate shaft from an enclosed gear within the compartment housing the half-time gears at the forward end of the motor. The fan diameter has been increased from 16 to 18 inches. To give this part of the engine a more finished appearance a flat belt is used for driving instead of the rope as in the past. As already referred to, the return water pipe from the centers of the jacket tops to the top of the radiator is made with a varying diameter in the proportion of one, two, three and four so that as the pipe from the fourth cylinder is joined by those from the third, second and first, it is increased in diameter in these proportions. The same rule holds good with respect to the exhaust manifold as it passes backward from the first cylinder and is joined by branches from the second, third and fourth cylinders. Before leaving this motor consideration, notice is directed to the two manganese bronze motor supports which extend crosswise between the side frame pieces of the car and at their centers carry the entire motor weight through a couple of vertical bolts in each. Formerly on these motors the top part of the crankcase was formed with large integral arms extending laterally and supported on the sub-frame pieces but with the dispensing with the sub-frame the use of longer arms was required and



PIERCE CONTROL PARTS



SECTION NEW PIERCE CARBURETER

manganese bronze was selected because of its increased tensile strength, and also owing to the fact that these supports, being much less voluminous than those of aluminum, leave the other parts of the motor very accessible. The ends of these manganese bronze pieces rest on a shoulder on a steel forging carried within the channel parts of the frame pieces and are further secured by means of horizontal bolts passing through them and the forging as well as the side pieces of the frame.

The Pierce transmission system, with the exception of the introduction of Hess-Bright bearings, has not been altered in any detail and embraces such principles of construction in the gearset as carrying both shafts in the same horizontal plane between the upper and lower halves of the case and having a sliding unit consisting of a pair of gears on the squared main-shaft. All gears on the countershaft are keyed in position and spaced by means of long hub parts. Direct drive is obtained by locking the gear on the short clutch-shaft with the sliding unit by dental face teeth. The intermediate low and reverse are gained by a continuous rearward movement of the sliding gears which is accomplished by the horizontal lever beneath the steering wheel as used for several years. An interlock system preventing shifting gears with the clutch engaged consists of a series of four holes in a short shaft connected with the shifting bar. A vertical pin rests in one of these slots with the clutch engaged, making it impossible to shift the gear. With clutch disengagement the pin is removed, permitting the shifting of gears. The rear axle design still includes the carrying of the short

pinion shaft on two races of ball bearings, one at the forward end and the other immediately in front of the pinion. An end thrust ball race is used on the bevel gear side of the differential. A change in the radius rod construction consists in the attachment of its two arms at the differential housing end on a vertical hub allowing of a hinged movement to right or left whereas at the forward end it is supported in a vertical tube between an upper and lower spring. Braking is through running and emergency brakes acting on the same drums on the rear wheels, the former clamping bands and the latter expanding shoes, brought into action by side lever. Besides increasing the diameter of the drum, it has been widened $\frac{1}{8}$ inch and the clamping bands are lined with bronze strips which when worn can readily be replaced. Bronze also is used on the expanding shoes. The brake equalizers, seen in the chassis view of the car, are long, perforated crosspieces extending through slots in the frame side pieces and have an attachment at their ends to the brake parts and at their front centers to the pedal and lever connections. The springs in the 45-horsepower car have been increased, being now 60 inches long in the rear. The axle seatings on which these rest now are mounted loosely on the axle sleeve. The forward axle is an I-beam construction, made with the characteristic inverted arch from end to end and having integral seatings for receiving the front springs.

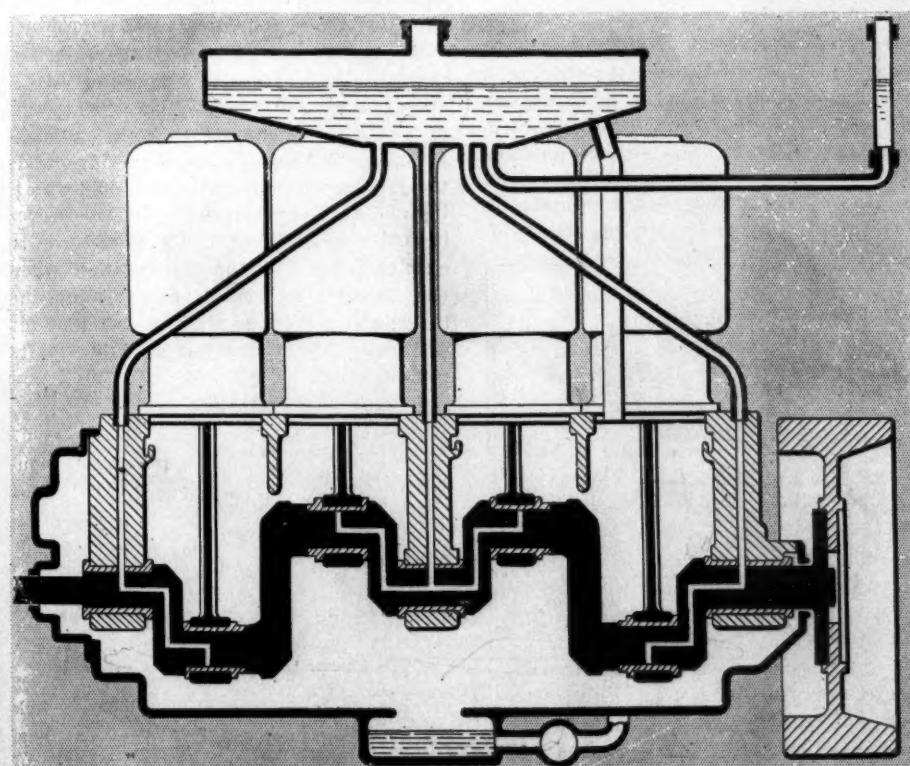
The six-cylinder Pierce motor is, in short, a 50 per cent increase on the 45 four-cylinder style, this increase appearing in such parts as crankshaft diameter, number of crankshaft bearings, diameter of water

pipe connections, diameter of intake and exhaust manifolds, size of carburetor, capacity of lubricating system, and alterations in the double ignition system, so it can be adapted for six-cylinder conditions. In the transmission system gears and shafts are slightly increased. In the running gear, besides heavier side frame pieces, longer springs and heavier axles few changes are noted.

Pierce bodies are of the straight line type, that on the six-cylinder car being exceptionally so and furnishing accommodations for five tonneau passengers. The additional two seats in the tonneau when not in use fold up against the sides of the body. When in service they have a vertical support direct from the car floor. The four-passenger 45-horsepower touring car is also furnished with a seven-passenger body, but the 30-horsepower machine is intended solely for five-passenger use. The six-cylinder car has a 135-inch wheelbase.

HEATH DRY GAS CARBURETER

The Heath dry gas carbureter, which now is beginning its second year on the market, is continued practically unchanged, save for a few minor details considered beneficial by its maker, the Heath Dry Gas Co., New York city. The Heath carbureter is novel primarily because it does not use a float for regulating the entrance of gasoline and second in that whenever the opening allowing air to enter is opened the needle valve in the spraying nozzle is opened, allowing a certain amount of gasoline to enter. Added to this is the use of a mechanical mixer to insure that the gasoline and air are well intermingled, giving a homogeneous mixture before entering the



PIERCE GRAVITY FLOW MOTOR OILING SYSTEM

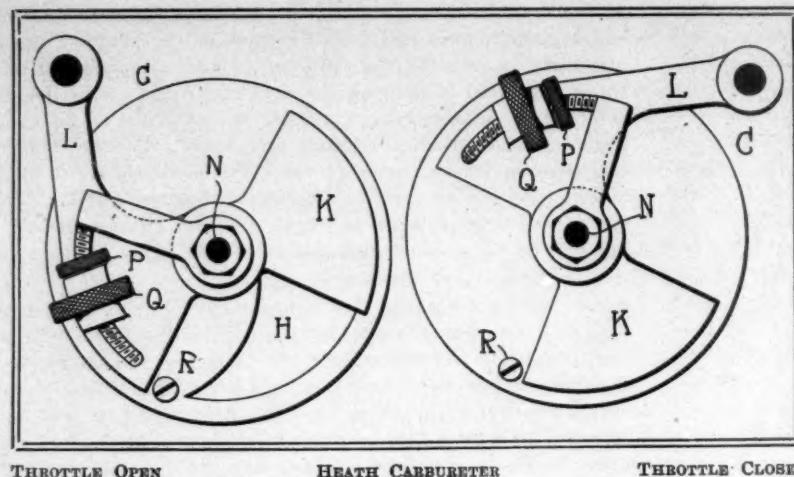
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oil + lubrication

cylinders. Looking at the sectional line drawing of this carburetor it is seen that all air entering by passage G is under control of a throttle C to be dealt with later. Once the air is in the carburetor it does not have to pass another throttle before entering the cylinders. Gasoline entering through a connection B is under control of a Tobin bronze horizontal needle valve F which carries the throttle C on its outer end, this being imperative because when the throttle C is opened or closed there is a corresponding control of the needle valve F. Before the gasoline has an opportunity to mix with the air it has to pass by a jumper valve D consisting of a pointed valve resting in a coned opening directly above the needle valve F and a large diameter disk together with a short vertical shaft carried in the bearing at the upper side of the disk. Above this is the mechanical mixing or carbureting wheel E, consisting of two parts—one a fan portion. Above this is stretched a piece of fine mesh screen. This wheel is supported on a ball bearing and is carried on top in plain bushing. To understand the operation of this carburetor, it must be recalled that in starting the motor the throttle C is opened, permitting air to enter, and that this air entering by way of passage G, as shown by the arrows, strikes the under surface of the jumper valve D, slightly raising it and lifting the pointed valve so that gasoline is free to pass the needle valve F. This current of air and gasoline drawn to the engine through the opening A causes the carbureting wheel E to revolve at a rate anywhere from 250 to 2,000 revolutions per minute. The air and gasoline passing through the meshes in this wheel are perfectly mingled before escaping to the motor. In understanding the con-

trol which exists between the air throttle C and the gasoline needle valve F it is essential to look at the two illustrations which show the air throttle C—one in which the throttle is shown open and the other in a closed position. In the open position H indicates the peculiar triangular entrance through which all air must pass; K is the shutter which closes this; L is the connection by which K is operated; N represents the end of the gasoline needle valve F, and P and Q are adjusting nuts by which the relative position of the shutter K and the needle valve N may be altered at will. With the slightest opening of the shutter K there is a part revolution of the needle valve N, allowing a little gasoline and a little air to enter. The peculiar angular shape of the air opening H and the point of the needle valve F are made to harmonize so that the proper amount of air and gasoline is provided no matter what opening is given the throttle. The jumper valve D determines when the amount of spray, gauged by the throttle, shall enter the carburetor. It is operated by the inrush of air against this disk so gasoline can enter only when air is entering. When running on regular speeds the jumper valve is continually off its seating and only on extremely low speeds does it flutter up and down. Its only use is to absolutely shut off the gasoline flow when the throttle is closed, and should the throttle open ever so slightly sufficient air will enter to raise the jumper valve off its seating in the casing.

IMPROVED SPEEDOMETER

A new feature is added to the 1907 Jones speed measuring instruments manufactured by the Jones Speedometer Co., of New York city. This feature is the addition of a second, or maximum hand or pointer. This extra hand is not included as part of the regular model. In using two hands one is placed directly above the other as in a stop-watch. The upper hand is black, the lower red, and each moves independently of the other. The black hand indicates the exact speed at all times, changing with every change of speed, and is permanent at that point until changed by a touch on the re-setting stem which is



THROTTLE OPEN

HEATH CARBURETER

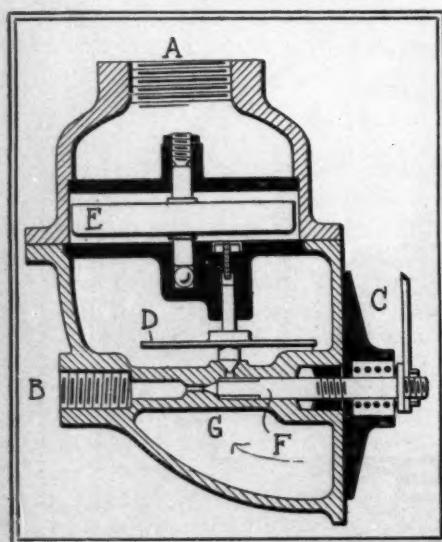
THROTTLE CLOSED

provided for that purpose. If, for instance, a car is traveling at 25 miles per hour the red hand indicates 25 and stops at that point. Should the car reduce speed to 10 miles per hour, the red hand remains at 25, but the black returns to 10. If an officer should signal the motorist to stop while traveling at say 12 miles per hour, by a simple press on the button, the red hand instantly flashes to the speed at which the car is traveling and remains there, not returning

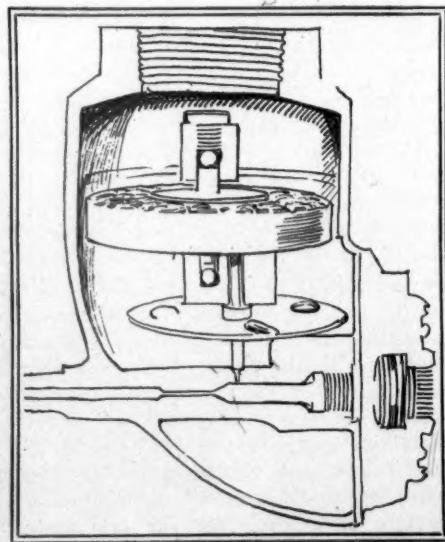
to zero. The device is useful in that a driver can tell after the completion of a day's run the fastest pace set during the day because at the completion of the day's work the maximum speed pointer remains at the highest point instead of returning to zero. The dial is no more complicated than on the ordinary style.

SPARK PLUGS FOR 1907

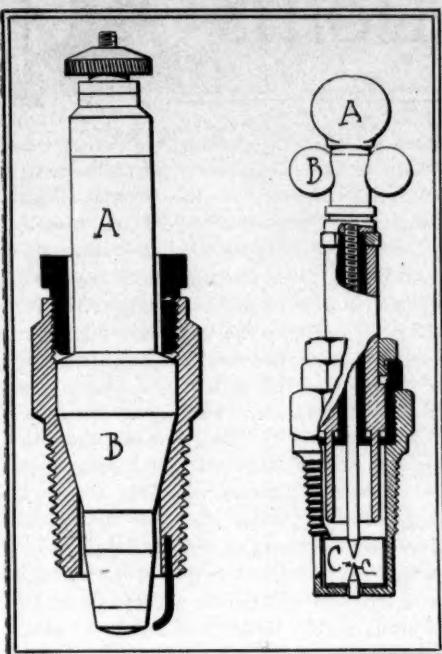
Manufacturers of spark plugs indicate by their designs for the coming season continued efforts to overcome the sooty difficulty so troublesome in past years. This problem is solved in many ways. In its Comet plugs the Oaks & Dow Co., Boston, Mass., uses a closed end device in one style in which it protects the engine end of the plug by means of an additional capping of porcelain so arranged and enclosed that there is little chance of breakage. Asbestos packing is not used. Insulation in these plugs is of the mica type, with the mica placed lengthwise, the company concluding that this is more permanent than porcelain. In the closed end plug, the central electrode point is located in the center of a small diameter circle. Projecting from this circle is a small point forming the other electrode. In the open end plug the small ending of the central electrode is turned at right angles and



SECTION OF HEATH CARBURETER



HEATH MIXER WHEEL



BENFORD RACER

FRY PLUG

brought point to point with the similarly turned electrode carried on the plug casing.

Somewhat of a novelty in plugs is that manufactured by T. C. & W. L. Fry Co., Rochester, Pa. As illustrated this plug is of the adjustable type in that the central electrode carries on its upper end a wing nut A and also a lock nut B so that by loosening the lock nut A right or left the electrode can be raised or lowered, thereby increasing or diminishing the gap that the spark has to bridge. In this plug the insulated porcelain is protected by two bushings so that when it is removed the lower bushing is unscrewed from the base without the original packing around the porcelain being disturbed. Consequently the porcelain may be removed, cleaned and replaced within the base of the plug without having to be unpacked. The adjustable feature of this plug has the advantage claimed for it by the maker that in different cylinders in which compression and mixture varies better results are obtained by varying the length of the sparking gap.

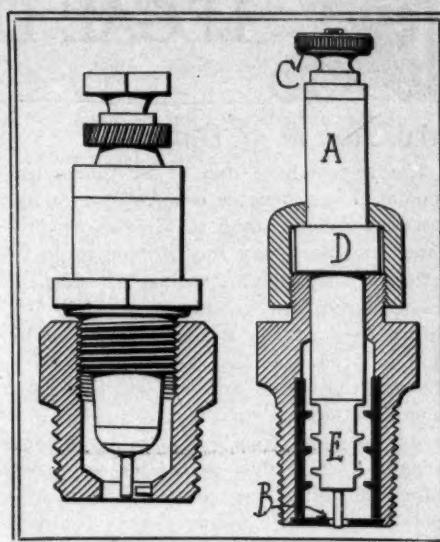
The Shur-fire plug, manufactured by the Igniter Appliance Co., Cleveland, O., and illustrated herewith, has two marks of individuality, one of which is the circular flanges E surrounding the lower end of the central part of the plug and alternating with these other circular flanges on the inner side of the casing. These are to prevent grease reaching the insulation and causing a short circuit. The other feature of the plug is that the central electrode extends through a peculiar star-shaped

opening B in the plate covering the inner end of the plug so that there are three sparks at once, each originating from the central electrode and bridging the gap to the three angular points of the star. In the illustration of this plug A represents the insulating core supporting the central electrode, C is the terminal nut to which the wire is attached and D is an enlarged portion of the insulation which acts as a shoulder for holding the compression as well as aiding in holding itself in position.

The Benford racer plug, also illustrated, is manufactured by E. M. Benford, Mt. Vernon, N. Y. It is of very simple construction and is featured by having a portion of the insulation A, a taper, fit at B into the plug housing. This construction eliminates the necessity of packing of any description. The only other parts needed in the plug are the housing which threads into the cylinder, and the retaining nut, by which the central electrode with its insulation A is held into position. The insulation in this plug is a series of white mica washers tightly pressed together and surrounding the central electrode from end to end. Other styles of plugs manufactured by this concern are the Benford Perpetual, in which there are four wires attached to the housing C, these being distributed at 90 degrees around it, thus giving four sparks instead of one, and the Benford Monarch plug has not the tapered insulation of the racer but uses an enlarged ring part instead.

SCHNEIDER RESILIENT WHEEL.

Patented by W. E. Schneider and manufactured by George C. Murray, 48 Broadway, New York city, the Schneider resilient wheel is constructed with a tire formed of a series of rubber struts, twenty-four in all, arranged between two concentric rims. One of these rims is attached to the ends of the wheel spokes and the other, some inches greater in diameter, is separated by means of the struts referred to. These rubber struts are of any desired size and if necessary may be replaced by a series of springs. To hold them in position triangular forgings, with two recesses at 90 degrees to each other for receiving



COMET PLUG

SHUR-FIRE PLUG

the inner ends of the struts, are secured to the outer surface of the inner ring. On the inner side of the outer ring is a set of similar forgings. Between the rims the struts act as a bracing scheme, ten of them always being under compression, or carrying the load. Carried over these two rims is a tire part with deep flanges fully protecting the rubber struts from dirt and securing the outer rim against side strain.

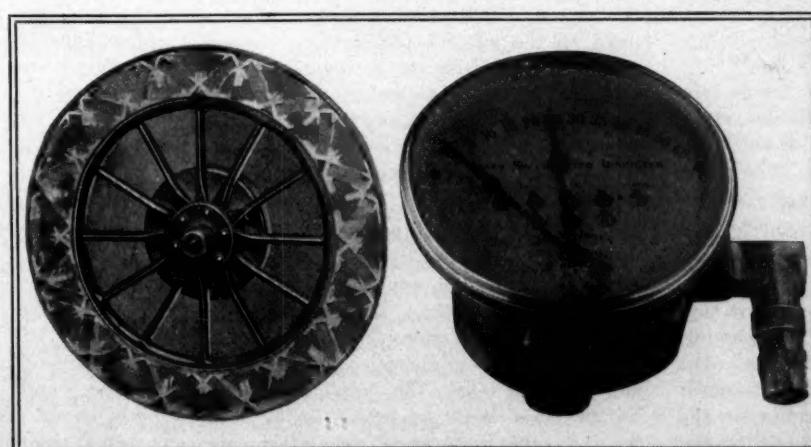
MOTOR CAR LITERATURE

The English & Mersick Co. in its latest booklet illustrates a general line of motor car hardware, but gives neither description nor prices.

In its 1907 catalogue the Noera Mfg. Co. illustrates its pumps, extension oilers, pump connections, pocket cups and gives prices on all of these.

The Apperson company fashions its 1907 catalogue largely after that of the past year except that colored illustrations are not used and a much superior line of parts illustrations is made use of. The cover is in green with "The Apperson Car" in decoration on the front.

In its 1907 supplement, the Timken Roller Bearing Axle Co. illustrates the various parts of the motor car showing how Timken roller bearings are applied to these parts. Illustrated in this manner are such parts as clutch, sliding gear transmission, front axle and steering knuckle, steering gear, front and rear stationary axles, differentials and live rear axles as well as jackshafts. Supplementing these is suitable descriptive matter, together with tables of specifications giving minute details of the bearings used in each place and the size of them for each place.



SCHNEIDER RESILIENT WHEEL

JONES IMPROVED SPEEDOMETER



LEGAL LIGHTS AND SIDE LIGHTS



SITUATION IN ST. LOUIS

The Automobile Club of St. Louis has appointed a committee composed of Judge James A. Seddon, John H. Holmes, Samuel Capen and Secretary Roy Britton to go to Jefferson City in the interest of the proposed motor law. On account of the enforcement of the 8-mile-an-hour law in St. Louis the situation has become desperate, and the motor interests will suffer incalculable loss unless the bill legalizing a graduated speed from 6 to 25 miles an hour is passed. The club committee appeared before the joint house and senate committees on criminal jurisprudence Tuesday of last week and urged favorable consideration of the bill. The committee hopes to have the bill reported favorably to the senate and house in a very short time. This bill is the only measure that will offer any relief to the motor interests of St. Louis. An ordinance has been introduced in the municipal assembly to legalize a speed of 15 miles an hour, but as this would be in conflict with the state law which fixes the speed at 9 miles an hour it would not stand in the courts. Mayor Wells attended the meeting of the club and told the members he would do everything in his power to help secure the enactment of the bill into a law. He told the club it was not wise for the organization to attempt to enforce the vehicle laws against other offenders, as two wrongs would not make one right, and would have a tendency to create a resentment on the part of other interests against motor cars. Owners are still having a great deal of trouble on account of the rigid enforcement of the law. Numerous arrests continue. The police magistrates have shown some consideration for the motorists by reducing the usual fines from \$25 to \$10, and in a few instances in releasing the offender upon the payment of costs, amounting to \$3. A number of owners, disgusted with the situation, have stored their machines until legislation can be enacted that will enable them to operate them on the streets of the city at a reasonable rate of speed.

ON WORKINGS OF JERSEY LAW

The annual report of J. B. R. Smith, New Jersey's motor vehicle commissioner, shows that official has carefully studied the workings of the Frelinghuysen law. The report was sent in to Governor Stokes and contains many good ideas advanced by Mr. Smith. After going into detail concerning the registration certificate system contained in the present law, the report says there are many times when it is impossible to comply with this part of the law. The numbers cannot be kept free from dust for any considerable period of time when the roads are ordinarily dusty, and still be displayed within 36 inches of the ground. Nor

can they be seen with any degree of certainty if they are free and clear of dust if the vehicle is moving at a rapid rate. "The law also provides that after dark, and this, perhaps, is the most important time of all, the registration numbers, in characters at least 1 inch in height, shall be displayed on the lamps," says Mr. Smith. "But experience has demonstrated that these numbers cannot be seen at all, and the rear lamp, which should be arranged to throw a light on the rear number, is, in almost every case, entirely inadequate to accomplish this purpose. The result is that a car exceeding the speed limit or otherwise violating the law can, if the driver sees fit, almost invariably evade identification, and the very purpose for which the identification marks are fixed is defeated. These observations apply particularly to the large high-speed cars." According to the report made by the commissioner the department has given the question of proper identification much consideration, and is certain that a complete system of identification of cars will go further to solve the many perplexing questions affecting the vehicle regulations than any other thing. After telling of the many plans that have been suggested to the department for proper identification, Mr. Smith believes the ideal identification would consist of some device that can be plainly seen under any conditions of light or darkness by the observer viewing the car from any reasonable distance and angle, and, on moving vehicles, for a sufficient space of time to afford the ordinary, untrained person an opportunity to distinctly observe and fix in his mind the particular mark or number. The problem, Mr. Smith believes, is capable of solution. Commissioner Smith regards as one of the most fortunate features in connection with the present system of identification the necessity of obtaining new registration and identification marks for every state through which a tourist may desire to pass. Commissioner Smith suggests an interstate system of registration numbers. In regard to the subject of licensing drivers, Commissioner Smith thinks the present law is weak, in that sufficiently effective punishment has not been provided for those who drive cars after the revocation of their license. After discussing the wide difference of opinion as to the wisdom of the provision of the law requiring a personal examination of the physical and mechanical ability of the applicant to drive a motor vehicle, the commissioner has reached the conclusion that the personal examination accomplishes no good purpose, and suggests that the applications for licenses to drivers be issued under oath. On the subject of speed regulation, Mr. Smith advances the theory that maximum

speed provision is a hindrance rather than a help in the enforcement of the law. He believes, however, in the provision prohibiting any person from driving a motor vehicle at any speed that is reasonable, having regard for the traffic and the use of highways, or so as not to endanger the life or limb or to injure the property of any person. Commissioner Smith is not a believer of the proposition to fix a maximum gear for motor vehicles. The report expresses without hesitancy the opinion that the average justice's court is not a proper one for the trial of motor vehicle actions. It suggests that justice could be better dispensed by the court of common pleas or some special court. According to the report, a more uniform and united action among the different police forces and local constabularies would be most desirable. It suggests that the motor car inspectors come into personal and frequent contact with both the local police authorities and users of the road, and that the law be passed defining and enlarging the duties of these inspectors. In conclusion, the report expresses a vigorous word of condemnation of selfish motorists.

WOULD ARREST CARS

Detroit has a new city council and several of its members are anxious apparently to secure fame by taking a crack at a motor car ordinance. The latest scheme announced is a measure according to which it is proposed to arrest cars violating the speed limit and imprison them for varying lengths of time in one of the city storehouses, allowing the owner or driver to go free. The alderman who stands sponsor for this plan is Scotch and says this plan works in Scotland. He urges that the exaction of a penalty of this character would speedily put an end to reckless driving, as the violators of an ordinance who are perfectly willing to pay a \$20 fine for their fun would think twice if, instead, they were faced with the possibility of leaving their favorite car in durance vile, "doing time." The Detroit police department is seriously considering the equipment of its flying squad with high-powered runabout instead of bicycles. In spite of the fact that two of the bicycle cops are as expert wheelmen as there are in the city, they have found themselves unable to cope with the violators of the speed limit. Motor bicycles are regarded as too conspicuous. Police Commissioner Smith also strongly inclines to the view that the speed and silence of a motor car will make it preferable to a patrol wagon in rushing policemen to a locality where the noisy patrol wagon would herald its advent in such a way as to defeat the purposes of the officers of the law in making arrests.



THE READERS' CLEARING HOUSE

CURRENT SUPPLY FACTS

Norfolk, Neb.—Editor Motor Age—Kindly answer the following through the Readers' Clearing House columns of Motor Age: Without taking cost into account, which of the four means now in use—dry cells, storage battery, magneto or dynamo—do you consider the best and most reliable for supplying current for a single-cylinder four-cycle runabout, the same being fitted with jump spark system? Is the Splitdorf vibrating coil which I have been using with dry cells likely to give satisfaction with any of the above methods of supplying current?—E. M. Huntington.

It hardly seems worth while to use a dynamo for a single-cylinder engine, especially if a jump spark system is used. A more powerful jump spark can be obtained with a magneto than with a battery. The magneto, however, would have to be geared to run at the same speed as the engine and this would require special arrangements for mounting it and providing a gear drive on an engine not originally designed to receive it. A dry battery of from five to eight cells, according to the coil, will be perfectly reliable as long as it lasts, but there ought to be two such batteries on the car. A storage battery is also reliable and somewhat cheaper to use than the dry battery. It should, however, be supplemented with a set of dry cells, which may be switched into use while the storage battery is being charged. The inquirer will find the storage battery a little more satisfactory than dry cells with the Splitdorf coil, as the Splitdorf is designed to give a heavy spark and use a large current.

DEFENDS BOY DRIVERS

Minneapolis, Minn.—Editor Motor Age—Your issue of January 10 contains an article entitled, "Redraft the Gopher Law." It says: "A committee headed by Dr. C. H. Kohler, of Minneapolis, is receiving copies of bills and sifting out the best. No person under 20 years of age shall be allowed to drive big touring cars on the streets." Some of those who are in favor of this law may have been arrested for speeding or reckless driving. They forget they were once under 20 years of age, and that if motor cars had been practical then they would not have liked to have been deprived of driving one. If passed this law would deprive the boy under 20 of one of the greatest pleasures of life. It is on the same principle as the stamp act and other causes of the revolution. It deprives the boy under 20 of his legal rights, no matter how good a driver he may be. There are a great many boys under 20 who are better drivers than older persons. I am certain an error is made when it is stated: "Many accidents in the twin cities have been directly

traceable to the operation of big cars by persons not able by age and experience to control the machines." Any strong, sensible boy can successfully operate a large motor car. After having watched for 2 years for accidents that ended seriously I have not found one in which the driver was a boy. If this is the case, and I am sure it is, I don't see where any claims can be made that it is the boys who cause the accidents. Those who think so jump at conclusions without stopping to think or take a look at the statistics which prove they are wrong. I have not found any people who uphold the age limit law, while a great many are against it. Some say, "pass the law the other way about and there will be fewer accidents." That would be as unfair and illegal as the other law. The only fair way is to let all those who are capable, regardless of age, run motor cars.—E. B. M.

BATTERY COMPARISONS

Union Bridge, Md.—Editor Motor Age—Kindly give me some information through the columns of the Readers' Clearing House. In what proportion should the measurements of a storage cell having a capacity of 10 ampere-hours and plates formed of red lead and litharge be increased so as to have a capacity of 60 ampere-hours? What sized generator would be required to charge cell of the larger capacity? And would the same cell do the work of six Columbia dry cells?—Raymond K. Angel.

The number or area of the small number of plates—positive or negative—in the cell should be multiplied by 6, and the other set of plates made to correspond. The generator will have to be able to deliver a current of 6 amperes at a voltage of $2\frac{1}{2}$ volts for every cell used. The ampere hour capacity of the cell will be greater than any of the dry cells, but to do the same work you will need three storage cells in series in order to get the necessary voltage.

USING DENATURED ALCOHOL

Seymour, Wis.—Editor Motor Age—We would like to know whether denatured alcohol could be used as a cooling fluid in automobiles when diluted with water. Would there be any danger of fire in the event of a leaking radiator or other part?—Lotter Bros. Mfg. Co.

It is entirely possible to use denatured alcohol for cooling purposes. Pure alcohol freezes at about 40 degrees below zero. Probably a 25 per cent solution would be amply strong for your purpose, as a solution of wood alcohol of that strength freezes at zero. As alcohol evaporates faster than water, you will need to add some occasionally to maintain your solution at the right proportion.

CHEAP TRANSPORTATION

Lawrence, Mass.—Editor Motor Age—I am sending you my expense account on a two-cylinder 10-horsepower runabout weighing 1,300 pounds that I have been using for pleasure for the past 3 years. I think it will be of interest to many people who are in doubt about the cost of owning a car. During the winter I always overhaul it thoroughly. By doing this myself I save much expense and also know that in the spring I start with the machine in perfect condition. I have not given the expense of this overhauling, as it varies each year, but the actual expense during the riding season 1906 of 9 months, 3,400 miles traveled, is as follows:

March	\$ 2.80	September	\$11.05
April	7.08	October	6.00
May	6.15	November	4.40
June	13.90		
July	6.71	Total	\$91.97
August	33.93		

In August I bought one casing, which is accountable for the large amount that month. Tire expenses can best be reckoned by the number of miles traveled, and a machine of this weight with 3 by 28-inch tires, I find for 3 years, including the original ones, that $1\frac{1}{2}$ cents per mile is the average. I doubt if anyone can say they cost less unless it's the tire makers. The above amount includes about \$28 tire expense I paid out for this period. Gasoline can be reckoned at 1 cent per mile. This is included in the above.—F. L. W.

REBABBITTING BEARINGS

LaRue, O.—Editor Motor Age—I have a two-cylinder car of a well-known make, and have had trouble with the babbitt coming loose in the connecting rods. They are of the hinge type. I have had two sets of connecting rods this season and the babbitt is loose in them. The anchor holes are not very deep and are small. What would be the result if I should enlarge the holes and clean the surface bright and then take solder and tin them? Would that make the babbitt stick to the rod any better? I also had trouble with brass or bronze main crankshaft bearing cutting next to the balance wheel. Can you line a brass box with babbitt, or how would drilling it full of holes and filling the holes do—or cut grooves in it?—Newton H. Davis.

See "Shop Kinks" in Motor Age for the current issue for full instructions on rebabitting worn bearings. It will do no harm to enlarge the anchor holes and drill them right through, but the probable trouble is that the crankpins are out of round and the babbitt linings are not properly scraped to a fit. It will also be necessary to be sure that the bearing in the crankpin end is properly lined with that in the wristpin end.



AMONG THE MAKERS AND DEALERS



Branch for Hotchkiss—A branch for the sale of the Hotchkiss shock absorber has been opened at 1256 Michigan avenue, Chicago, in the New Southern hotel.

New Wayne Agency—The Wayne Motor Car Co., of Detroit, announces the establishment of an agency in Seattle, Wash., with M. Francis Kane.

Firestone Made Sales Manager—Robert J. Firestone has been appointed sales manager of the Firestone Tire and Rubber Co., with headquarters at Akron, O.

Newcomer in Field—The Hay-Berg Motor Car Co., of Milwaukee, has just started manufacturing air and water-cooled cars. It expects to have a demonstrating car at the Chicago show.

Gooden Made Manager—B. F. Gooden has been appointed manager of the Mount Vernon Motor Car Co., 1118 Cathedral street, Baltimore, Md. The company is agent for the Autocar and the Haynes.

Takes the Wayne—The Commercial Auto and Supply Co. has located in Baltimore, Md., having the agency of the Wayne. W. C. Long is the manager. The new garage is located at 862 North Howard street.

Is Winton Agent—The Baltimore Motor Carriage Co., which recently began operations in Baltimore at 305 North Howard street, has the agency for the Winton car. Thomas C. Goodwin is manager of the company.

Sells His Garage—J. W. Hays has sold his garage at Second avenue and Jefferson street, Spokane, Wash., to M. Hansen for \$20,000. The building is of brick, 50 by 142 feet, two stories high. The White company has leased the first floor for 5 years for garage purposes.

Slot Gasoline—The Barkhausen Oil Co., of Green Bay, Wis., is about to install a slot machine from which gasoline can be drawn in quantities from 25 cents to \$1 worth. With the fluctuation in price the machine will be manipulated to deliver the exact worth of each piece of money.

Six-Cylinder Premier Expected—There will be a six-cylinder Premier next year, it is announced. It will be water-cooled and probably of 60-80 horsepower. One of the company's 1908 models will be a six-cylinder touring car, and it is also expected that there will be a six-cylinder runabout.

Would Exact a Fee—Solons in the Indiana legislature are considering a measure that promises to affect motor car manufacturers who have agencies in Indiana, if it becomes a law. The measure provides that all foreign corporations doing business in Indiana shall pay a corporation fee the same as home concerns and it is said to cover a wide range. There is some such



HARTFORD'S EARLIEST EXPERIMENT

law on the Indiana statute books at present, but it is said to be so loosely constructed that little or no effort is made to carry out its provisions.

Branching Out—The Indiana Automobile Co., of Indianapolis, is preparing to build an addition 50 by 140 feet and will start a general jobbing business in accessories.

Charge in Capital—J. R. Thomas, agent for the Maxwell at Washington, D. C., has removed from 1319 L street, N. W., to the large and pretentious salesroom and garage at 1028 Connecticut avenue, formerly occupied by the Cook & Stoddard Co.

Making the Maryland—The first motor car factory to locate in Baltimore is the Sinclair-Scott Co., which has begun the manufacture of the Maryland. The new factory is situated at the corner of Patapsco and Wells streets. The Maryland is equipped with a 24-horsepower four-cylinder engine.

Huss With Brush—The Brush people at Detroit are busily forming their factory staff and will have the whole organization ready to announce in a few days. But one appointment has been formally ratified as yet, this being the selection of Dwight Huss, the former transcontinental race-winner, who is placed in charge of the sales end of the business.

Kick on Garages—There seems to be opposition to garages being erected in the back bay in Boston. The people living there do not like the spirit of commercialism to drive them out of town for homes. The Locomobile company encountered trouble when it started to build its place. The White company was also bothered when the first garage was built for it on Newbury street. Now it is arranging to erect a still larger one. But legal action was taken to prevent its erection. Mr. Burrage, a wealthy Bostonian, owns a

stable nearly opposite the new White place. He has filed objections to the place and the matter will be threshed out in court, it is said.

Semple Made President—Charles H. Semple, late of the G & J Tire Co., has resigned to become president of the Empire Automobile Tire Co., of Trenton, N. J.

De Luxe Appointments—The De Luxe Motor Car Co. announces the placing of the Detroit agency with the Motor Sales Co., 251 Jefferson avenue. The Boston business of the firm will be looked after by H. C. Stratton.

Breaking Ground—Ground has been broken at Pacific avenue and Seventh street, Tacoma, for the new garage of the Reliable Automobile Co. The Halstead house, a landmark, is being removed to make way for the improvement.

Glide Agents—The Western Tool Works, of Galesburg, Ill., announce the appointment of the following agents: Bohrman-Herson Co., Los Angeles, Cal.; C. L. Glenn Co., Spokane, Wash.; Cornish-Friedberg Motor Car Co., Chicago; Eastern Exchange, Newark, N. J.; Ferguson Implement Co., Kansas City, Mo.

Liberty Enlarging—The Liberty Automobile Co., of Pittsburg, has started the erection of a two-story fireproof addition to its present plant in Beatty street, east end. The addition will be 120 by 110 feet and will be completed by March 1. The company has the agency for the National, Mitchell, Mora and Wayne.

Colonial Reorganizes—The Colonial Automobile Co., of Pittsburg, has been reorganized with the following officers: President, H. W. Klein; secretary, H. N. Miller; treasurer, R. C. Succop; directors, D. M. Miller, P. H. Mueller and J. H. Shaffer. It will handle the Cleveland, Aerocar, Carter and Baker electric this year in Pittsburg.

Switch in Officers—These changes have been announced in the Jackson Automobile Co., 312 West Ninth street, Kansas City, Mo.: C. Boyd Richards retires as president and is succeeded by W. A. Frank. Mr. Richards has sold his stock. F. L. Bumgardner is vice-president and treasurer. J. E. Holstead continues as secretary of the concern.

Franklin Election—The stockholders of the H. H. Franklin Mfg. Co. in annual session elected the following directors: H. H. Franklin, E. H. Dann, John Wilkinson, Giles H. Stilwell, Alexander T. Brown, W. C. Lipe and Frank A. Barton. Inspectors of election, H. W. Chapin and John G. Barker. The directors elected the following officers: President, H. H. Franklin; vice-president, Giles H. Stilwell; sec-

retary, Frank A. Barton; treasurer, H. Barton Webb; executive committee, H. H. Franklin, Giles H. Stilwell and John Wilkinson.

Increase Stock—The capital stock of the Perfection Spring Co., of Cleveland, has been increased from \$20,000 to \$50,000. The company manufactures springs.

New Officers Chosen—Officers elected by the Deere-Clark Motor Car Co., of Davenport, Ia., are as follows: President, C. H. Deere; vice-president, W. E. Clark; secretary, O. E. Child.

Taxis Resigns—W. W. Taxis has resigned his position with the Crawford Automobile Co. and now is seeking a berth as a factory manager or assistant manager of a branch house.

Wins Tire Forces—S. H. Stern, formerly manager of the Dac Auto Supply House, has been appointed manager for E. Lamberjack & Co., now sole American representatives of Michelin & Co.

Adds More Cars—The Mar-Del Mobile Co., of Baltimore, has taken over the agencies of the Elmore and Northern cars and the Babcock electric. The company will still continue as the agents for the Franklin, Waverley, Cadillac and Packard cars.

Getting the Idea—E. V. Hartford, president of the Hartford Suspension Co., has in his possession an old photograph showing his first experiments in developing the Truffault-Hartford shock absorber. The device he used was fitted on the forks of a tricycle, the front wheel being of wood and bound with an iron rim.

Franklin Progresses—Up to date the H. H. Franklin Mfg. Co., of Syracuse, has sold 40 per cent more cars than it delivered all last season, it announces. From the stock of lumber standing in the yard a person might think the company was contemplating entering the lumber business. Material for wood sills is on hand in sufficient quantity to care for the needs of the company until 1910.

Lowers Price of Tire Tanks—Announcement is made of the reduction in price of the Prest-O-Lite tire tank by the Prest-O-Lite Co., which says: "After 1 year's experience with 500 of these tire tanks in the hands of users we are so confident of a demand for them that we are having 10,000 built for 1907 requirements. By building in large numbers we are able to reduce the list price from \$35 to \$18."

Packard Half Through—The Packard Motor Car Co. announces the passing of the half-way station in the production of 1907 cars, the 450th out of the 900 cars which the company will put out this year having been completed on Saturday of last week. W. E. Hurlburt, the manager of the New York retail branch of the Packard Co., has notified the office that he already has closed for the sale of sixty of the firm's 1908 models. The first one of these cars has already come through the factory and is being driven on the road. While none of the details of the car have

yet been announced, it is stated at the Packard factory that there are fewer changes in this model than in any of the firm's former annual offerings.

Succeeds Owen—Arthur H. Robbins, formerly connected with the H. H. Franklin Mfg. Co., has succeeded Percy Owen as manager of the New York branch of the Aerocar company. Mr. Robbins has been connected with the Ford and the Pope companies. Mr. Owen recently withdrew to form the Percy Owen Motor Car Co. in New York city.

Ford on Vacation—Henry Ford is taking his first vacation in 10 years. Last week, with Mrs. Ford, the president of the Ford Mfg. Co., has succeeded Percy Owen. They have arranged to take an extended motor car tour of the Pacific coast. It will be thoroughly a pleasure tour, however, and Mr. Ford will for once endeavor to get as far out of the swirl of trade as he can, and for a period of at least 2 months, he declares.

Cartercar Agencies—The Motor Car Co., of Detroit, announces the following new distributors of the friction-driven Cartercars: New York Automobile Co., Utica, N. Y.; George R. Tucker, Attleboro, Vt.; Pacific Commercial Car Co., Tacoma, Wash.; J. Y. Clark, Leesburg, Fla.; Colonial Automobile Co., Pittsburgh, Pa.; Cartercar Co., 1519 Belmont avenue, Philadelphia, Pa.; J. F. Priehs, Port Huron, Mich.; J. E. Bindner, Bay City, Mich.

Want Wider Tread—The Moore Automobile Co., incorporated 6 months ago to rebuild, assemble and repair cars and take over the Franklin agency from the Gilbert Hunt Co., has discontinued building machines at Walla Walla. Mr. Moore, the manager, says the purpose for which the company was formed has been accomplished—securing from eastern manufacturers concessions in specifications of machines for the western trade. This embraced the construction of machines with a 60-inch tread to conform to the standard width of the roads here, which are 4 inches wider than the 56-inch track in the east. The companies, he says, refused to adopt the 60-inch tread until compelled to do so by the establishment of competition.

National Agents—The National Motor Vehicle Co., Indianapolis, has appointed the following agents to look after its line during 1907; Gate City Motor Car Co., Keokuk, Iowa; Automobile Supply and Storage Co., Baltimore, Md.; McKinley Automobile Co., Rochester, N. Y.; Ralph Temple Automobile Co., Chicago; Automobile Exchange, Birmingham, Ala.; Rariq Automobile and Garage Co., San Francisco, Cal.; Linscott Motor Co., Boston, Mass.; Homan & Schulz Co., New York city; Puget Sound Automobile Co., Seattle, Wash.; R. F. Boda & Co., Columbus, O.; Fawkes Automobile Co., Minneapolis, Minn.; Sharman Automobile Co., Salt Lake City; National Automobile Co., Los Angeles, Cal.; Tioga Automobile Co., Phila-

delphia; F. E. Boland Motor Co., Newark, N. J.; Fisher Automobile Co., Indianapolis, and Liberty Automobile Co., Pittsburg.

New Advertising Manager—Howard M. Post has assumed the duties of advertising manager of the Quincy-Manchester-Sargent Co., the successor of the Railway Appliances Co.

Making Bodies—The Penn Carriage Co. has gone into the business of manufacturing semi-limousine bodies for touring cars. The body has a glass front with full doors and drop sashes while the side and back windows are opened by means of hinges allowing the glass to be swung up against the roof of the car. Thus it readily converts a touring car into an enclosed car without much trouble.

Wayne in Canada—The Wayne Automobile Co. has determined to open a lively campaign for business in Canada. The concern announced a few days ago the placing of its agency for the provinces of Ontario, Quebec and New Brunswick with the International Automobile Co., of Montreal, Que., and adds that the International people will this year establish branches at Ottawa and Toronto. The progress of the Wayne in the Dominion field will be carefully watched by the other Detroit factories, as the effort is practically a new one, little attention having been paid to the Canadian trade up to date, due to the high tariff which prevails.

Big Concern on Coast—The Rose Automobile Co., of Spokane, incorporated for \$50,000, has just completed a garage at First avenue and Walnut street at a cost of \$10,000. It is a one-story pressed brick structure 100 feet square. The floor is level with the street grade, making entrance and exit easy. There is in connection with the garage a repair equipment costing \$5,000 and a tire repair equipment costing \$3,000. There is also a sundries stock carried valued at \$30,000. These sundries are jobbed throughout Washington, Idaho, Montana and retailed locally.

Factory in Des Moines—The second factory in Des Moines, Ia., will soon be turning out two machines a week it is announced. The Motor Component's Mfg. Co. is reorganizing and will in the future manufacture cars. When the new company is incorporated it will be known as the Criterion Motor Co. and will have a capital stock of \$100,000. W. H. Kitto & Sons are the builders of the new car and sixteen of their patents and inventions are included in its construction. The car will be a 40-horsepower four-cylinder and water-cooled rig and will be called the Criterion. New machinery will be installed in the company's present building and 100 men will be employed as soon as the work is commenced. Three shifts will be employed in the Criterion factory, at least for the present, in order to turn out all the work the company proposes doing for the forthcoming season.

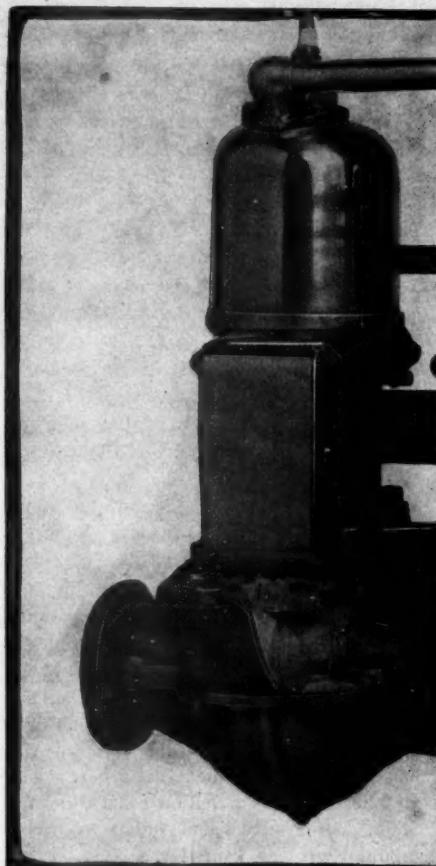
TWO CYLINDER



WO-CYCLE motors for truck use are receiving more attention at the present time than two-cycle engines for pleasure car service. One year ago the Reliance company, Detroit, turned its attention entirely to the production of two-cycle commercial wagons, which have been in constant operation since then. Now comes the Coppock two-cycle truck manufactured by the Ward Fence Co., Marion, Ind., and illustrated herewith. The Coppock ton truck, the subject of this and the following paragraphs, is best understood by a casual reference to the accompanying illustrations, particularly that of the chassis which shows it to be of the standard two-cylinder type with separately-cast cylinders carried vertically in front beneath the car seat. Flexible connection with the motor is through an expanding clutch operating in the flywheel. Changes in speed are obtained by a sliding set giving the regulation three forward variations. Final drive is by means of side chains from jackshaft sprockets to rear wheels. Supplementing this illustration in gaining a general conception of the Coppock truck is that showing the completed vehicle with low stake body. As noted previously the seat is carried well above the cylinder tops and the footboard is above the forward part of the motor where the commutator and water pump are carried. Using this design gives good carrying space notwithstanding the short wheelbase of 87 inches. The framework used is of 11-64 nickel steel stock, has the side pieces only slightly offset in front and uses a couple of straight sub-frame pieces for taking the support of the motor and gearbox, these sub-pieces being in turn carried by crosspieces. Front and rear axles are also of nickel steel stock, the former made in I-beam section, suitably

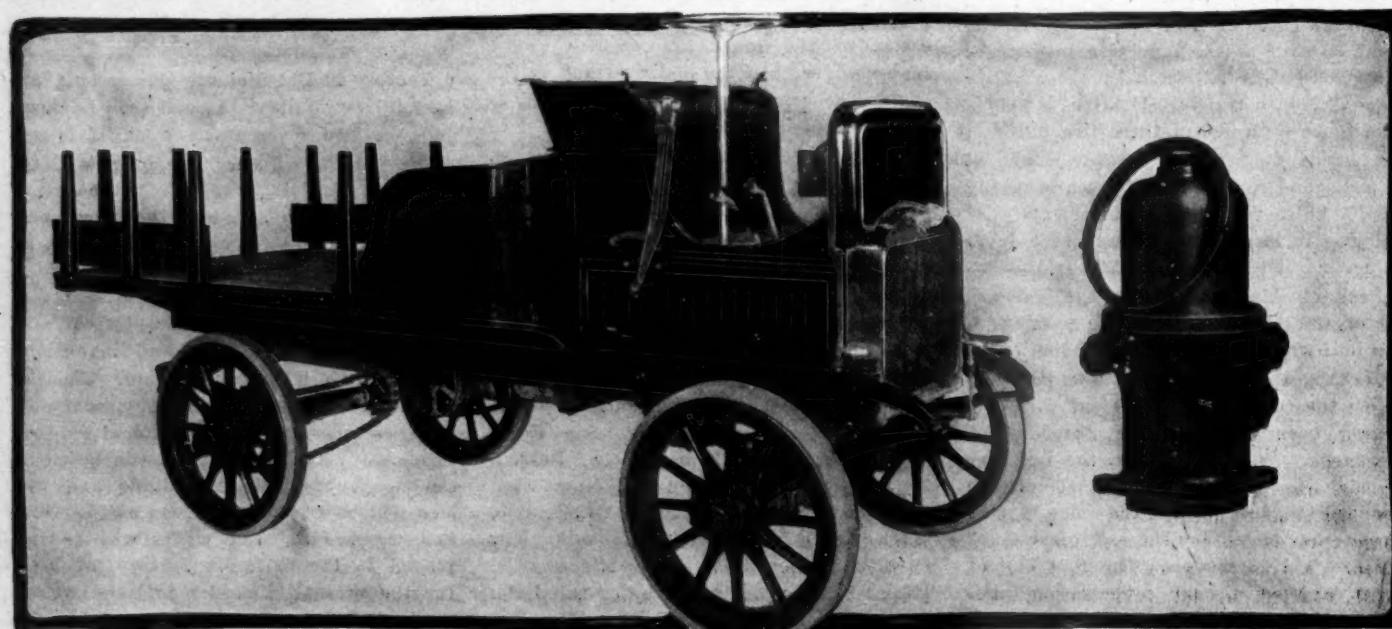
THE REALM OF THE

dropped in the center for flywheel protection, and the latter made in square section, measuring $1\frac{1}{4}$ inches to the side. Bearings for front and rear wheels are of the Timken roller type. Carrying the forward end of the mainframe are two semi-elliptic springs each measuring 40 inches in length and each consisting of eight leaves with a 2-inch width. Supporting the rear of the framework is a platform suspension consisting of three half-elliptical springs, the side pair 48 inches long, $2\frac{1}{4}$ inches wide and with eight leaves carried entirely outside of the frame pieces. The crosspiece, which is an inverted semi-elliptic, is shackled at its center beneath the crosspiece of the frame at the rear. This spring is 38 inches in length and carries eight leaves. Steering is through a worm and sector gear with the tie rod between the steering knuckles carried in rear of the front axle. The steering column is placed vertically on the right side and carries a steering wheel with aluminum web and wood rim. On this wheel are mounted the spark and throttle control levers. Front and rear wheels are 32 inches in diameter and respectively carry $3\frac{1}{2}$ and 4-inch Diamond solid tires. The bearing problems of the car have been solved by the use of bronze in the motor, American rollers at the outer ends of the jackshafts and Timken rollers in all other parts of the car. The general use of nickel steel, as already mentioned, in the axles, framework and other places is further noted in connection with the motor and transmission parts. To insure ample control of the car by the driver an equipment of four brakes is used, two of which are clamping bands operating on steel brake wheels on the jackshaft, these wheels having a $10\frac{1}{2}$ -inch diameter and



COPPOCK

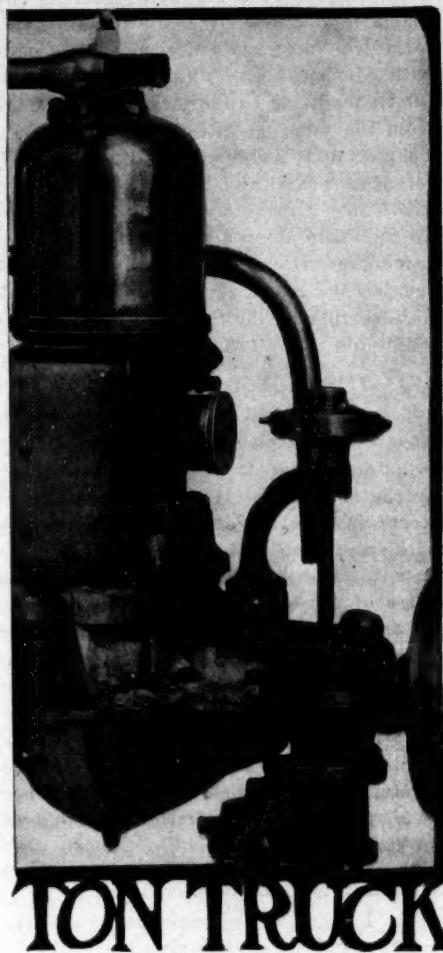
$2\frac{1}{4}$ -inch width. The remaining two brakes are clamping cast steel shoes bearing upon drums on the rear hubs, these drums measuring $10\frac{1}{2}$ inches in diameter and having a $2\frac{1}{2}$ -inch width. The first mentioned set



COPPOCK 1-TON TWO-CYCLE TWO-CYLINDER TRUCK AND CYLINDER WITHOUT JACKET

COMMERCIAL CAR

TWO CYCLE



TON TRUCK

of brakes is brought into use by pedal and the second by emergency lever, touring car fashion, at the right of the driver. Foot-board arrangements are as on touring car.

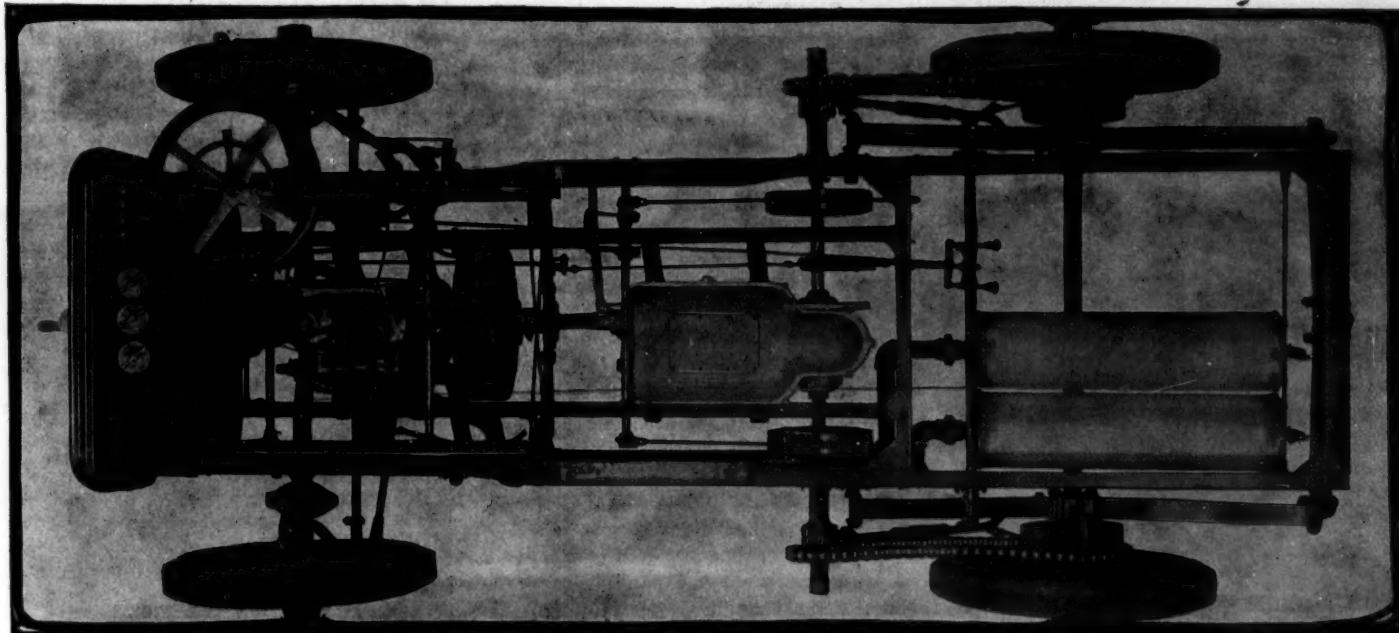
The Coppock two-cycle motor has cylin-

ders with 4½-inch bore and 5-inch stroke, which cylinders are machined on the outer surface before the copper waterjackets are attached to insure good iron and to maintain a perfectly round cylinder under all conditions, the even cylinder wall thickness meaning even cylinder expansion and contraction. The motor operates along three-port principles, receiving its mixture from a carburetor on the left side and taking it into the crankcase which is formed with a gastight compartment for each cylinder. The gas from the crankcase reaches the cylinder through a bypass channel on the right side of the motor, the oblong plates covering these passages appearing in the illustrations on these pages. Exhaust is on the left side, the separate exhaust pipes appearing in the motor view on one of the following pages.

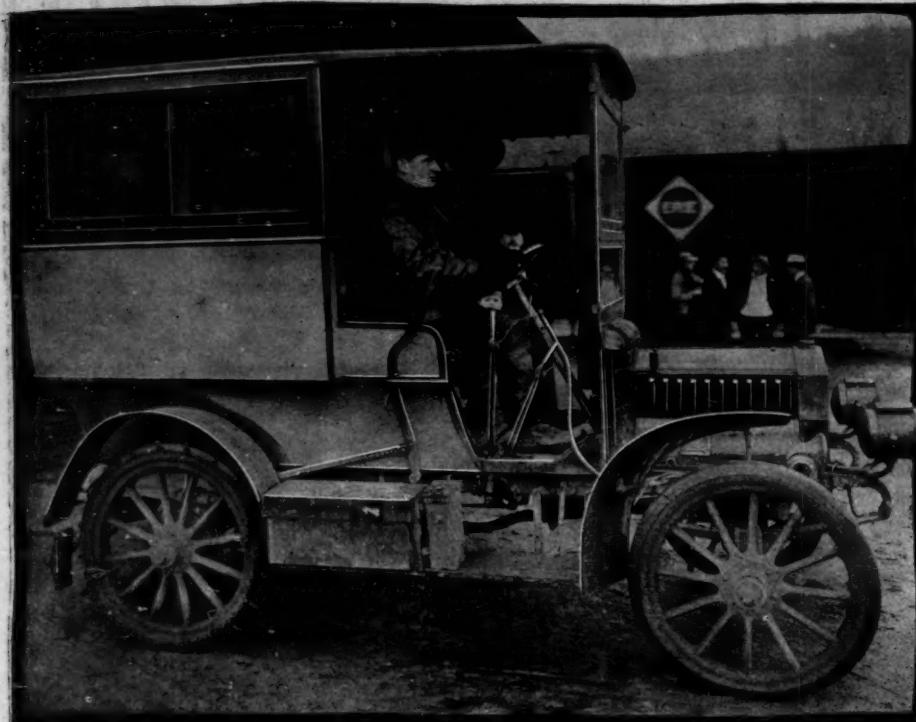
The cylinders have 16-ounce spun copper jackets held in place with a hexagon bronze nut at the top, and a spanner nut of the same material at the bottom, allowing easy access for cleaning the jacket. The weight of the cylinder finished is 16½ pounds without jacket. The cylinders are finished by reamer; piston and rings are ground to size. The lubrication of the pistons and connecting rods is positive by force feed oiler gear-driven in the following manner: One oil pipe leads to a boss on the side of the cylinder, leading to a groove on the inside of the cylinder which is 3-16 inch wide and ½ inch deep. This groove is cut from one side of the piston pin extending around to the opposite side. In this manner it entirely surrounds the piston except the width of the pin which is 1½ inches. On the movement of the piston this groove is not uncovered but comes to ½ inch of

each end of the piston on its up and down stroke. In this manner the piston and rings always are lubricated, with little waste of oil. For the lubrication of the connecting rod the piston pin is hollow two-thirds of the way through. The second oil lead registers with this hollow end. The piston pin is drilled so when the crank is in a vertical position oil is fed to the upper end of the rod. When the crank is in a horizontal position the oil hole is drilled in the pin to register with the tube fastened in the channel of the connecting rod, which leads to its lower end. After the car was in service for 2 months the lower crankcase was drained to see what quantity of oil was wasted, and it was found there was less than 1 ounce in each compartment. The crank journals are fed by hard grease cups placed upon the dash in plain view of the operator, and lead to the engine in the ¾-inch eighteen gage copper tubing. The great advantage of these cups on dash are: First, the operator will not neglect them as they always are in sight; second, they are away from heat of the engine, and the grease will always remain in a firm condition.

The piston rings are the Cartwright steam packing style. The outer ring is ¾ inch wide, ½ inch thick, and is split at 45°. Two rings under this master ring are 3-16 inch and ½ inch eccentric 5-16 inch wide. All these rings are pinned by one pin passing through the lap of the master ring, and between the two eccentric rings. There is an allowance made of 1-16 inch in the depth of the ring groove over the two ring thickness for lubrication. With this method of arrangement of the rings, and lubrication, after exhaustive tests were made, no signs of carbon deposit in the ring grooves were shown, which is



TOP VIEW COPPOCK 1-TON CHASSIS, SHOWING DOUBLE CHAIN DRIVE



MAXWELL BUS FOR TUXEDO PARK, NEW YORK

so common with many two-cycle motors. The crankcase is made from special aluminum alloy with the lower half made in two pieces flanged together in the center to allow adjustments to be made on either rod without the crankshaft dropping out during such operation. Bearings on the crankshaft are babbitt and bronze. The outer bronze shell has twenty-four studs cast with it and which extend through the babbitt lining. Babbitt metal is put in these shells by means of hydraulic pressure so as to secure the best wearing surface, which is afterwards machined to size. This method secures an even surface of babbitt and bronze for the bearings. They are three in number, and each is 4 inches long. The crankshaft is 30-point carbon steel, hand-forged, carrying a 5½-inch flange for bolting on the balance wheel. It is finished all over, the main journals being ground to size. The bearings in the lower end of the connecting rods are split in the usual manner, but they overlap each side

of the rod the same as in steam engine practice with wrist pin bearings. They are pinned with a 3-16 inch pin in each half to keep from rotating in the rod end. These dowel pin holes in all bearings are drilled with special jigs so as to insure perfect fitting for renewals.

The commutator and pump are driven from one set of 45° spiral gears $\frac{3}{4}$ inch face, twelve pitch, made of nickel steel, and hardened. The commutator shaft is mounted on three ball bearings with proper means of taking up wear. These gears are encased on front of the engine shaft in a bronze housing which is filled with grease. The pump for water circulation is of the standard gear type with $\frac{3}{8}$ inch inlet and outlet openings.

Cooling is by vertical tube radiator carrying 176 feet of tubing. Assisting this is a four blade fan belt driven off the front end of the crankshaft. A neat belt adjuster is achieved by threading the standard carrying the fan into its supporting bracket and using nut and locknut for retaining it in any desired position.

The expanding bronze ring clutch acts within the small diameter drum seen on the rear face of the flywheel. This drum has a diameter of 10 inches and a width of $2\frac{1}{4}$ inches. To insure gradual clutch engagement with an absence of gripping a series of cork inserts is used in the bronze band, these cork portions forming 8 per cent of the band surface. Looking more closely at the band it is noted it is a two-part one, with the halves hinged together at one side and supported on a carrier. At the other end are the expanding arrangements. The expander illustrated to the left of the bronze band is a flat-shaped campiee which acts against the short

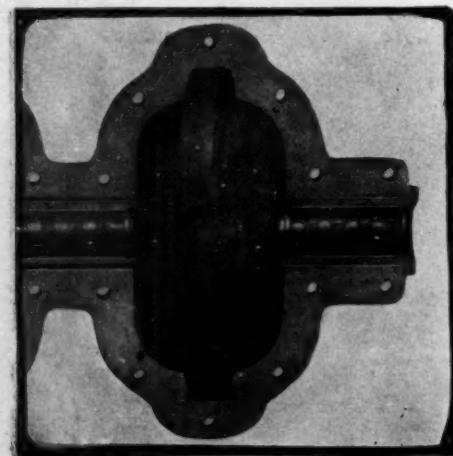
radial lever attached to the expander. Connection from the clutch to the gearbox is through a drive shaft, with universal joint immediately in the rear of the flywheel. The transmission is standard, with its two shafts carried side by side and with gears formed of hardened nickel steel and made with 1-inch face and six pitch. The bevels for transmitting to the jackshaft are made from the same metal but have four pitch. The jackshaft has a square fit into the differential gears and carries on its ends small size sprockets for the chain drive. To facilitate chain adjustment radius rods extending between the outer bearings of the jackshaft and the rear axle are used. Besides this model the company purposes building a model B 3-ton truck.

EXIT THE HORSE BUS

Tuxedo Park, N. Y., where the horse always has held unlimited sway, is rapidly being dominated, in one particular at least, by the motor car. It is evidenced by the recent installation of three Maxwell cars with small omnibus bodies and solid rubber tires, to take the place of five horse-drawn buses of the same seating capacity. The motor cars are operated by the Tuxedo Park Association particularly for the conveyance of passengers from the railroad station to the hotel. They are in continuous service day and night. Since they are gasoline machines they never are under the necessity of delays for charging that are usually a part of an electric equipment of the same character.

REGULATING LONDON BUSES

The London city council, never slow in issuing regulations governing the traffic in the city streets, has risen to the occasion by issuing a code of rules regarding the size of bodies to be used on motor cabs and other motor vehicles for public use within the city limits. The attention of proprietors of cab and bus lines as well as car makers has been called to this code so that all future machines will be built in strict accordance with these stipulations. Of primary importance in these rules is one requiring the submitting of carriages for inspection before use, coupled with one stipulating that any vehicle before passing

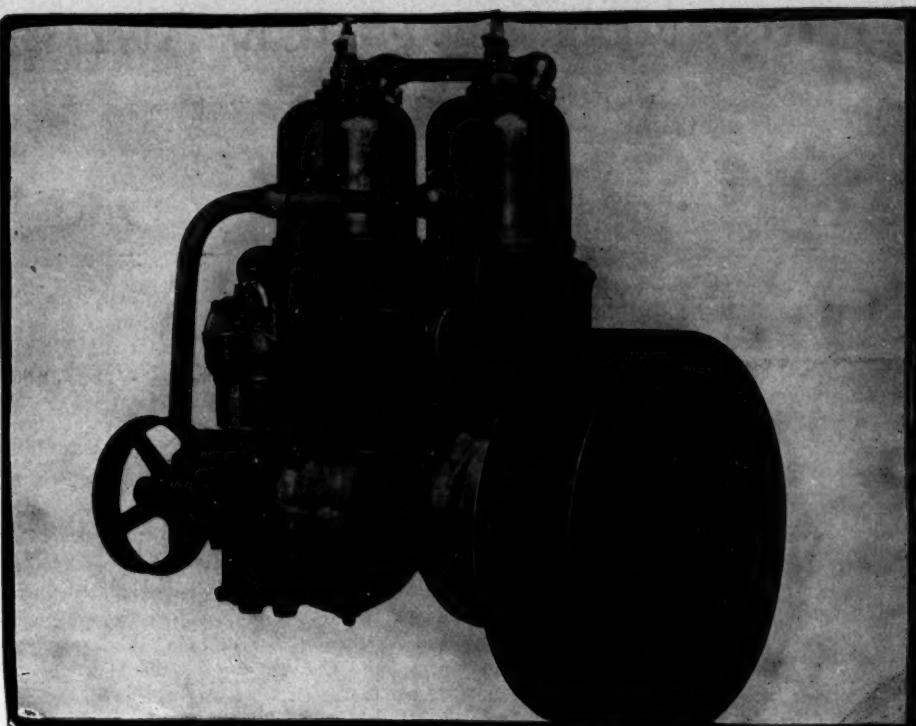


CRANKCASE PIT FOR ONE CYLINDER



COPPOCK CYLINDER AND RINGS

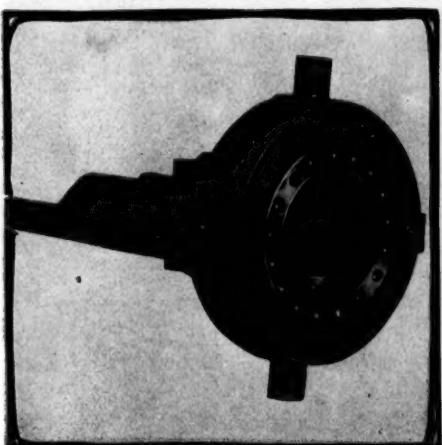
this inspection must be freshly painted and varnished. Each new type of motor bus or cab must be presented for inspection at the New Scotland Yard at which time the proprietor must present his certificate of registration together with one from the maker of the machine stating it to be properly and safely constructed in every way. If the car is approved such approval will suffice for all additional machines of the same make when it is coupled with a statement from the maker that no alterations have been made from the previously examined model. Should there be changes made a second inspection is imperative. The wheelbase must be proportioned so as to avoid skidding and the commissioner reserves the right to withdraw a certificate if during operation the vehicle shows excessive skidding proclivities. Springs must be carried on the axles as close to the wheels as permissible. The distance between the outside of the rear springs must not be less than 40 inches and that between the front pair not less than 26 inches. The tread must not be less than 52 inches. The hansom body has to be 40 inches high from the top of the seat cushion to the roof, 40 inches wide with 26 inches of seat depth and 28 inches of knee space. A landau or brougham body must have the 40-inch height, 40-inch width, 21-inch doors, and a 19-inch space between the seats where two are used. A hand rail for assisting passengers entering is essential and the total length over all of the chassis and body is limited to 14 feet and the extreme width to 69 inches. Each vehicle must carry two independent brakes of such strength that either set is capable of stopping or holding the vehicle at any place. No two set of brakes operating on the same part of the car are considered independent and as far as possible brakes must be made for easy adjustment. Each vehicle must be capable of turning in a circle of 25 feet diameter and all brake and steering connections secured with bolts must have the nuts doubly secured by lock nuts or cotter pins. Machinery has to be constructed so as to avoid undue vibration and noise; cotter pins or lock nuts must be used wherever there is danger of the nuts loosening because of vibration; carburetors



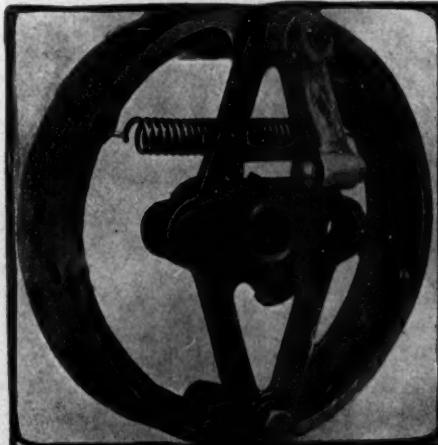
SIDE OF COPPOCK TWO-CYCLE MOTOR, SHOWING CARBURETER

must not be placed in close proximity to magnetos or to wires or connections carrying the igniting current except the wires are carefully encased; means must be taken to prevent the motor or exhaust heat from affecting the other parts of the carriage or the comfort of the passengers; electric wires must be insulated throughout their length; gasoline or other fuel tanks must be made of suitable material, should be placed so that any overflow will not accumulate where it can be readily ignited and the filling nozzle shall be brought to the outside of the body; machinery must be constructed so that the oil cannot drop upon the roadway and where oil aprons are used to prevent this they must have provision to prevent the oil dripping when ascending or descending hills; carburation and lubrication must be so regulated that smoke is not projected with the exhaust or from any other part of the machine; the muffler outlet must not be so placed as to direct the exhaust directly onto the road or where it will frighten horses following immediately behind it; means for preventing side slip are essential; horns or gongs are imperative; driving chains and sprockets must be protected by guards; head lights of great brilliancy are prohibited; each vehicle must have a check string or other means of communication between the passengers and driver; the number of passengers which the vehicle is licensed to carry must be legibly written on the back of the body outside; where acetylene gas is used for lighting, the generators or vessels carrying the gas must be carried on the outside of the body and capable of quick removal in case of fire; straps with holes must be placed on the window frames and metal or bone knobs fixed inside of the carriage enabling the windows to be par-

tially closed; carriage floors that are more than 18 inches above the ground must have steps and hand rail to assist passengers entering; provisions must be made for the safe conveyance of a reasonable amount of baggage; floors must be covered with mats or other suitable material; no advertisements must be carried on the inside or outside of the carriage; no celluloid or other combustible fittings must be fitted; ventilation without the opening of windows must be furnished; means must be provided for preventing the rattling of windows and the glass; one lamp must be carried at the right side of the vehicle for illumination and another at the rear to illumine the identification plate; seat cushions where used must be made of leather or other good suitable material and not stuffed with hay, straw, seaweed or whalebone shavings; and all parts like doors, panels, seats, roof, wheels, linings and curtains must be carefully cleaned daily and the body work kept well painted.



COPPOCK CAM CLUTCH EXPANDER



COPPOCK EXPANDING CLUTCH BAND

FOUR MEN, A TRUCK AND A WINTRY TRIP

CHICAGO, Jan. 30.—What is undoubtedly the longest official trip by a commercial truck was made this week from Detroit to Chicago, a distance of 304 miles, by a 3-ton Reliance two-cycle two-cylinder truck with a 1½-ton load. The trip was made to demonstrate the efficiency and adaptability of friction transmission for commercial cars, the particular type used in this truck being that made by the Gearless Transmission Co., of Rochester, N. Y., which type of transmission has been adopted by the Reliance company as a regular equipment for all of its trucks. The truck, carrying Andrew Bechley, driver; George F. Day, sales manager of the Reliance company; George D. Wilcox, manager of the Gearless Transmission Co., and O. W. Davis, inventor of the transmission, together with its own supply of gasoline and oil with other dead weight, left Detroit at 2 o'clock Saturday afternoon, January 26, and reached Motor Age office, Chicago, at 11:05 a. m. today, having required less than 4 days to make the run. The actual running time was 33 hours 49 minutes, in which is included time spent each day in oiling the truck on the road. This means an average speed of 9 miles per hour for the 304 miles. The truck is geared for a maximum speed of 15 miles per hour and on stretches of good road a speed of 13 miles per hour was maintained for 3 consecutive hours. From Detroit the Saturday run was to Ypsilanti, 32 miles, which place was reached at 5:45 p. m. Leaving this point at 7:25 a. m., Sunday, a run of 82 miles to Coldwater was completed by 7:50 o'clock in the evening. This was the longest day's run of the trip and was over roads that were a succession of hills varying in grade from 5 to 12 per cent. Monday morning the start was made at 8:30 and at 5:25 that evening the truck had reached South Bend, Ind., a



THE TRUCK AS IT REACHED MOTOR AGE OFFICE

distance of 79 miles, the roads over this division being good with but little snow.

Starting out Tuesday morning at 8:30 o'clock Hobart, 68 miles, was reached at 5:45 o'clock that afternoon, and Wednesday's run was a 43-mile jaunt to Chicago, the start from Hobart being made at 7:21 a. m. and Chicago reached at 11:05 a. m., at which time the photographs illustrating the truck on this page were taken showing the actual condition of the machine on its arrival here. It was on this last stage of the run that snow in depths varying from 5 inches to 2 feet was encountered. In one place the drifts nearly buried the front wheels and where, had it not been for the lengths of logging chains wrapped around the tires on the rear wheels, it would have been impossible to have made progress. From Detroit to Chicago chains of this style were continually used owing to the snow on the roads and the slippery state of roads. These chains were cut in two four times on the road.

The attention given the truck on the run consisted in the regular oiling of the parts, the filling of the tank with gasoline and the expenditure of 50 cents for soldering a leak in the gasoline tank caused by a bolt working out of place in the body. In other respects the truck did not receive attention, the motor not having had an adjustment from start to finish and the friction transmission receiving no more attention. At nights all parts were looked over to see how they were standing the run but adjustments and replacements were not needed.

In summing up the expenses of the trip the 58 gallons of gasoline used at 13 cents a gallon, the 3 gallons of lubricating oil at 35 cents per gallon and the drivers at \$2 per day make a total of \$16.50. The truck carried a net load of 3,300 pounds, making the cost per pound for transportation from Detroit to Chicago ½ cent, or at the rate of 3½ cents per ton mile. In this is not taken into consideration any fraction of the cost of the machine or its depreciation—merely those of fuel and driver.

For the benefit of those readers not familiar with the Gearless friction transmission it will be sufficient to state that it differs from all other friction transmissions in that when running on the direct

drive there are not any friction disks or wheels in operation and the drive is direct from the motor to the jack-shaft as in a car with a direct sliding gear transmission. Only on other speeds and in reversing do the friction parts come into use. The friction system consists of a pair of opposing friction wheels carried on a cross-shaft. Between these is a friction wheel on the longitudinal shaft running to the jackshaft. The friction wheels on the cross-shaft contact with the face of the motor flywheel at opposite sides and transmit through their disk surfaces with the friction wheel on the shaft to the jack-shaft. The friction wheels are made 16 inches in diameter and have cast iron friction faces and prepared friction peripheries, so friction is through cast iron and this prepared friction surface.

From Detroit to Chicago the truck's trip was an ovation. Farmers took double the interest in it that they generally evince in pleasure cars and citizens in all towns en route flocked to see it. In one Indiana town one Hoosier rustic whose conceptions of the motor car were not the clearest held up his hands in horror as it drew to the street curb, and gasped: "What have you there?" Words failed him further. Others professing to be more familiar with motor cars designated the truck a new design of hay press.

The Reliance truck which made this test was exhibited for the first time at the Coliseum motor car show a year ago, and is a two-cycle machine, with the friction transmission as described and side chain drive. The motor, carried vertically under the seat, operates on the regular three-port principle and has a standard water-cooling system, jump spark ignition and positive lubrication. Its running gear is strongly constructed and a specially stout braking system is fitted.



O. W. DAVIS



A. BECHLEY



G. D. WILCOX



G. F. DAY



BRIEF BUSINESS ANNOUNCEMENTS

Los Angeles, Cal.—P. H. Greer, who represents the Mitchell, has added to his list the Marvel car.

Paterson, N. J.—The Autocar Co. has appointed the Auto Co., of Paterson, as its local representative.

Newark, N. J.—Louis J. Wurth, of 26 William street, has been appointed local agent for the Mitchell car.

Allentown, Pa.—Application will be made for the granting of a charter for a concern to be known as the Dietrich Motor Car Co.

Phoenicia, N. Y.—The Kent Spark Plug Co. has been incorporated with a capital stock of \$1,000 to manufacture spark plugs and electrical apparatus.

New York—The General Automobile Supply Co., J. C. Nichols manager, has removed from 1663 Broadway to the Lincoln Hotel block, Broadway and Fifty-second street.

New York—The Austin-Hutchinson Co. has been incorporated with a capital of \$5,000, to manufacture motor cars and carriages by H. B. Hutchinson, L. C. Hutchinson and C. F. Hutchinson, of 1964 Broadway, this city.

Philadelphia, Pa.—An application shortly will be made for a charter for the Chadwick Engineering Works, which will manufacture motor cars and motor car parts, as well as hardware, machinery, electrical apparatus, etc.

Columbia, S. C.—The E. A. Jenkins Motor Co., agent for the Reo, has found its present quarters at 1216 Main street too small and will shortly remove to a more commodious salesroom. The location of the new garage has not yet been announced.

Chicago—A new agency for the Baker electric has been established at 1413 Michigan avenue by G. R. Pierce and W. G. Isbell, formerly of Detroit. J. S. Gorham, formerly with the Orlando F. Weber Co., will be associated with them as sales manager and electrical engineer.

Houston, Tex.—A permit has been granted for the erection of the new carriage repository and garage which Mosehart & Kellar are to erect next to their present quarters on Carlen street. The building is to be of brick, three stories in height, and will cost about \$26,000.

Columbus, O.—The Brandt-Johnson Auto Supply Co., which has a factory on Donaldson street, is about to build an addition 100 by 50 feet, which will about double the capacity of the plant. The concern was incorporated over a year ago, and manufactures bodies, tops, glass fronts and other accessories. C. C. Bern is the president, W. R. Johnston vice-president and

superintendent, L. P. Hostler treasurer, and Charles F. Brandt secretary and general manager.

Philadelphia, Pa.—Charles Kerbeck is to build a two-story rear addition 22 by 28 feet to the garage at 1358 Ridge avenue.

New York—F. Foster Ladd, agent for the Harrison, has taken the sales room on the ground floor of the Times building which was formerly occupied by the American Mercedes.

Norfolk, Va.—The Norfolk Horse, Carriage and Automobile Co., of Norfolk, has been incorporated with a capital stock of \$25,000 to do a general horse, carriage and motor car business.

Detroit, Mich.—The Anderson Forge and Machinery Co., manufacturer of drop forgings for motor car companies, has trebled the capacity of its plant. R. A. Alger, Jr., is the president of the concern.

Pittsburg, Pa.—Thomas Cochran, who has been the manager of the East Liberty Automobile Co., has severed his connection with that concern and in future will be connected with the Keystone company.

Cleveland, O.—J. F. Hansen, formerly connected with the Hartford and Home Rubber companies, has been appointed state sales agent of the T. C. Whitecomb Co., agent for the Rambler and National. A new company, to be known as the Whitecomb Auto Livery Co., will take over the

RECENT INCORPORATIONS

New York—General Automobile Supply Co.; capital stock, \$50,000; to manufacture motor car apparatus, machinery, operate garage; incorporators, Harry E. Nichols, Frank B. Perry, Edward S. Paine.

Waverly, N. Y.—Hartford-Vinet Co.; capital stock, \$10,000; to manufacture rims for motor cars and other vehicles; incorporators, F. M. Van Wagonen, P. S. Hill and B. L. Mason.

New York—Fire Protection Co.; capital stock, \$18,000; to manufacture motor car apparatus; incorporators, Albert H. Funke, Albert B. Norwalk, Henry Saxon.

Newark, N. J.—Livesey Pionnis Motor Car Co.; capital stock, \$25,000; to manufacture vehicles, motor cars, etc.; incorporators, H. Livesey, A. J. Giommeri.

North Yakima, Wash.—Yakima Garage & Automobile Co.; capital stock, \$5,000; to deal in motor cars; incorporators, H. R. Mitchell and A. F. Mitchell.

Cincinnati, O.—Suburban Automobile Garage Co.; capital stock, \$40,000; to store and deal in motor cars; incorporators, Carl B. Kruse and others.

St. Louis, Mo.—Victor Automobile Mfg. Co.; capital stock, \$2,500; incorporators, Robert Horne, Grace Horne, Joseph Harrington and others.

Hamilton, O.—Hamilton Motor Car Co.; capital stock, \$10,000; to deal in motor cars; incorporators, Eleanor H. Parrish and others.

livery business formerly conducted by Mr. Whitcomb. Eight new machines have been purchased for the service.

Saratoga, N. Y.—The Hudson Valley Construction Co. has been granted the contract for the erection of the West garage.

Lansing, Mich.—The De Luxe Motor Car Co., of New Jersey and Detroit, has been incorporated in this state with a capital stock of \$125,000.

Seattle, Wash.—F. Francis Kane shortly will open a garage on Blanchard street, near Eighth avenue. He has taken the agency for the Wayne.

Troy, N. Y.—The Taylor Electric Truck Co. has elected the following officers for the coming year: President, John Taylor; vice-president, A. L. Gurley; secretary and treasurer, W. F. Gurley.

Paterson, N. J.—The Auto Garage and Repair Co., of Paterson, has been incorporated with a capital stock of \$25,000, and will repair cars. The incorporators are G. B. Hackett and J. D. Lewis, both of Paterson.

Philadelphia, Pa.—The International Motor Car Co. has made application for a charter, and will engage in the buying, selling, etc., of motor cars, both at wholesale and retail, and will also conduct a general motor business.

Detroit, Mich.—The local agency for the Reo car, at 289 Jefferson avenue, will be reopened under a new management. R. M. Jones, formerly with the Detroit Automobile Co., and F. O. Holden have taken over the interests of the agency.

Los Angeles, Cal.—J. C. Cook and B. L. Brown have bought out the interests of C. H. Kay and Phil Dorland in the Electrical Construction Co. and hereafter the Waverley agency and the garage at 1126-1130 South Main street will be run under one management. The company will handle all models of the Pope-Waverley car.

New York—Edward A. Cassidy, who has been manager of the publicity department of the American Motor Car Manufacturers' Association, has formed a partnership with J. B. Davy, and will engage in a general supply business in the southern states. The headquarters of the concern will be located in Baltimore and the new firm will be known as Cassidy, Davy & Co.

Detroit, Mich.—A new company has been organized to be known as the Feo-Vincent Electric Car Co. It has purchased property on Jefferson avenue, between Antoine and Hastings streets, and plans for a garage 52 by 200 feet have been prepared. The new concern will handle electric cars exclusively, and will be the headquarters for the Woods electric, formerly handled by the Detroit Auto Co.



FROM THE FOUR WINDS



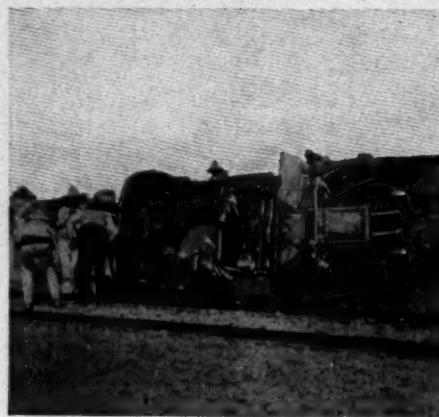
Ardennes Circuit Entries—Fourteen nominations already have been made for the Ardennes circuit race, the list including four Panhards, three Darracqs, three Gogos and four Mercedes.

Tickets at \$10 Each—E. S. Partridge, a New York dealer, suggests that at the next show in Madison Square garden that a day be set aside for actual purchasers and that on that day the admission be placed at \$10 in order that the prospective may have a chance to study the cars without being bothered by the huge crowds that usually are on hand.

No Accessories Show—The Motor and Accessories Manufacturers, at the annual meeting voted down the proposition to hold a fall show in 1907. The election of officers resulted as follows: President, H. S. White, Shelby Steel Tube Co.; first vice-president, H. E. Raymond, B. F. Goodrich Co.; second vice-president, William H. Crosby, Crosby Co.; third vice-president, E. W. Beach, Manufacturers' Foundry Co.; treasurer, W. S. Gorton, Standard Welding Co., secretary, P. S. Steenstrup, Hyatt Roller Bearing Co.

All Vehicles Must Carry Lights—The motorists of Washington, D. C., are interested in the announcement that the district commissioners are considering the advisability of enacting a police regulation requiring all vehicles, whether used for social or business purposes, to carry lights after dark. Some years ago, at the request of the motorists, an effort was made to secure the enactment of this regulation, but the protests against it were so strong that the commissioners abandoned the idea. There is no doubt that many accidents occur on account of no lights upon vehicles other than motor cars at night, and it may be that the conditions now warrant some action.

Talks on Carbureters—At the meeting of the Automobile Club of Philadelphia last Saturday night Professor Charles E. Lucke, of Columbia university, delivered a lecture on "Carbureters" to about 150 members and friends. He devoted not little time to a discussion of the device in its relation to kerosene and alcohol fuels. In the former the air used to vaporize must be hot, he said, else the liquid would condense in the tube. In alcohol practice heated air was also a requisite and the openings must be larger than when gasoline is used. The by-pass cannot be used with alcohol, but he suggested that the difficulty might be removed by simulating gasoline conditions by having a double vaporizer. After the lecture Professor Lucke submitted to a half-hour's bombardment of questions from his interested auditors, and then followed a supper dur-



GLIDDEN'S CAR AFTER THE WRECK

ing which a general discussion of things motoring took place. A committee was appointed by the president to arrange for the annual banquet of the club, and at midnight the meeting adjourned.

France Not Sore—The question of the detention of a number of French machinists by the United States immigration authorities has not passed unnoticed in France, but it is not presumed to criticize the internal laws of the United States. In fact the incident is not one to create any discussion in France.

Asks Big Appropriation—Appropriations aggregating \$108,750 from the Washington state highway fund are recommended by State Highway Commissioner J. M. Snow, formerly of Spokane. He urges that the total amount be distributed among the several state roads for continuing the work already begun. He also recommends changes in the state highway law. At present the highway commissioner is required to meet with the county commissioners on the occasion of opening bids. This entails much trouble and heavy traveling expense.

Hower Reappointed—President William H. Hotchkiss, of the American Automobile Association, announces the reappointment of Frank B. Hower, of Buffalo, N. Y., as chairman of the touring board of the association for the current year. The touring board will not merely have charge of tours like the Glidden tour, but it will begin at once the collection of information which will be useful to tourists, covering the present condition of laws and ordinances in force in the different states and cities of the country; the best routes available between given centers of communication; hotel and garage rates on such routes, and where they may obtain the most serviceable maps of any given territory. The information to be gathered by the board will always be furnished by the secretary of the association. Mr. Hower has named Dai H. Lewis as secretary of the board

and he will have charge of all the detail work and will be in direct communication at all times with the office of the association in the Metropolitan building, 1 Madison avenue, New York.

Rhody Officials—Officers elected by the Rhode Island Automobile Club are as follows: President, W. Penn Mather; vice-president, Charles O. Read; treasurer, Howard D. Wilcox; secretary, Frank M. Barber; governors, for 3 years, John R. Dennis and Charles A. Russell; for 2 years, Everett F. Boyden; for 1 year, Fred L. Smith.

Glidden Going Abroad—Having returned to his Boston home after his Mexican trip, C. J. Glidden is preparing to pass the rest of the winter touring around the Mediterranean. The Napier car which was upset near the City of Mexico has been shipped to England and will meet Mr. Glidden on the shores of the Mediterranean.

Mail Cars for Seattle—Postmaster Stewart, of Seattle, Wash., will attempt to secure motor cars for the collection of mail in his city. In a short time the head of the department of salaries and allowances will be in the city and Seattle's postmaster then will take the matter up with him. Up to this time the department has opposed the move on the grounds that the streets there are too hilly, but it is expected to give the superintendent a demonstration that will remove this idea.

Another Speedway—The Motor Car Highway Co. has been organized to build a motor highway which will be a private road from the Forty-second street ferry, New York, to Tuxedo, N. Y., running through the Jersey meadows and northern New Jersey. There will be two tracks each 35 feet wide, divided by a 30-foot road which will be raised to a height of 4 feet on which the motor highway will be constructed. There is to be a toll gate and station at each crossing and entrance can be gained only at these stations.

Another Vanderbilt Candidate—Right on the heels of the announcement that the Bergdoll-Ambler Co., of Philadelphia, expects to enter a six-cylinder car in the next Vanderbilt cup race comes news that another quaker car will be on hand to start, at least in the eliminating contest. This latest candidate for speed honors is the Parkin car now being built in the shop of Parkin & Son, on North Broad street. It will have a six-cylinder engine, the cylinders $4\frac{1}{2}$ by $5\frac{1}{2}$ inches, in pairs, with all valves on one side, shaft-drive, two speeds forward and one reverse, a maintained speed of 80 miles an hour being possible on the high gear. The actually developed horsepower will be 120, and the machine will have many novel features, the carburetor, oiling system and

other parts being of the builders' own design, no less than fifteen patents having been taken out in the last 10 years on these various parts. The Parkin will have a wheelbase of 110 inches, and the weight in racing trim will be well within the Vanderbilt cup limit.

Back from Long Tour—The Gehr party, composed of W. S. Gehr and H. S. Canfield and their wives, have returned to Wenatchee, Wash., west of Spokane, from a tour of 10,000 miles. The party left Spokane in May, crossed the continent in their machine, reaching New York early in the autumn, and have since been touring the eastern states. The party has shipped the car back by freight. Mr. Gehr had intended to return in the Glide in the spring by way of California and the southern states, but business required his immediate presence at home.

Rich Men as Cops—Colgate Hoyt, A. R. Shattuck, W. E. Scarritt, D. H. Morris and G. F. Chamberlain, of the Automobile Club of America, have been appointed special policemen to aid the regular policemen in running down violators of the speed law. They can carry revolvers and billys and while they draw no pay from the city of New York they are clothed in all the authority that goes with the positions. They must report monthly to the police commissioners. Cleveland also has a wealthy special policeman in William F. Hart, son of a millionaire, who has been made a minion of the law and added to the sheriff's staff.

Edge's Latest Aspiration—S. F. Edge, of England, announces that the first opportunity he has next May he will attempt to drive a stock six-cylinder Napier 24 hours at the rate of 60 miles an hour. A stop will be made every 6 hours to take on supplies and Edge intends being at the wheel the entire distance. If he succeeds he will do at least 1,440 miles as against the present record of 1,080 miles made by the National at Indianapolis. Charles Jarrott has asked that Edge make a race of it. If the latter refuses Jarrott will engage the track for the next day for a trial in a de Dietrich. It is proposed to use the new 5-mile track at Weybridge as soon as it is ready for racing purposes.

A. L. A. M. Show Report—Members of the committee of the Licensed Automobile Manufacturers held a meeting on Friday night of last week, the first since the close of the recent show in Madison Square garden. It was stated that more than \$3,000,000 worth of motor cars were sold, directly or indirectly, at the show, and of this amount \$957,000 was taken for imported cars. Records also showed that 125,000 people attended the exhibition. In fact, so great was the crush that the committee feels it will be necessary to increase the admission fee from \$1 to \$2. Furthermore, plans are already being formulated for an increase of floor space for an additional 20,000 square feet. The

business during the show may be gathered from the statement that there were 215 telephones, and that more than 15,000 outgoing calls were recorded at the public station, while more than 25,000 outgoing calls were used from the telephones at the various booths.

Fighting a Tax—There will be an effort made at the present session of the Indiana legislature to obtain either an abolition of the power of cities to charge motor license fees or else to obtain a uniform system of such fees. At present almost every city in the state is charging a different license fee, ranging from \$1 to \$3 in Indianapolis to \$10 a year in New Albany. In addition to the annual license drivers are compelled to register their cars with the secretary of state, for which a fee of \$1 is collected.

Told on Staley—A friend tells a good story on Frank M. Staley, of the H. T. Hearsey Vehicle Co., of Indianapolis. With a party he was back in the country trying out a new Rambler, and while going some ran down a chicken and cut his head off. Staley returned to find an old colored mammy picking up the chicken and professed her a bright, new \$2 bill, having used up all his smaller change, with his profuse apologies. She seemed reluctant to take it, but did, and after the party got into the car to start, one of his friends asked her if it was her chicken. "Oh, no; but I kin eat him just the same."

Toll Reduction Refused—After 4 weeks' consideration of the plea of the Camden, N. J., board of trade for reduced ferry tariffs for teams and motor cars between that city and Philadelphia, the Pennsylvania railroad officials have handed the suppliants a particularly juicy specimen of the citrus limonum in the shape of a curt refusal to meet them even half way. The board members naturally are somewhat sour and sore over their treatment, and are considering the advisability of putting the matter up to the legislature, where anti-railroad legislation is quite fashionable this term. Failing in this, it is proposed to employ legal talent to prove to the interstate commerce commission that out-of-town patrons of the Pennsylvania are being favored as against Camdenites and farming teams in the matter of rates to and from the quaker city.

Quakers' Good Road Progress—Since the Pennsylvania good roads law went into effect 235 miles of improved highway have been laid down with state aid. There are 216 miles under contract not yet completed. Highway Commissioner Hunter recommends an expenditure of \$8,000,000 for road construction, \$2,000,000 of which shall be used for building trunk lines. Since the election of a reform state treasurer a year ago the present system of carrying a treasury surplus of about \$12,000,000 to be farmed among the banks for favors received has suffered some severe jolts, and the advocates of

spending a portion of this surplus on good roads are growing stronger in the legislature with each succeeding week. A combination of the motor element from the big cities and the farming contingent from the country is being formed to expedite the progress of the good roads project.

Reo Economy—Another mark has been added to that of the Reo as an economist in gasoline and a record-breaker for all-around work. This was shown during the holiday rush at Grand Rapids, Mich. At that time M. Friedman, proprietor of one of the largest department stores, was forced to press his car into delivery work. The car used slightly less than 23 gallons of gasoline in 6 days' constant running. In the 6 days 555 stops and starts were made without a delay for adjustment. Naturally Mr. Friedman is well pleased.

Switzerland's Strength—In proportion to its 100,000 inhabitants Geneva is the city where the most motor cars are to be found. In Switzerland during 1905 415 cars and 694 motor cycles were declared, which gives about 200 inhabitants per car and 150 inhabitants per motor cycle. The motor cycles mostly are of a light type for which Geneva constructors have become renowned. Ordinary cycles in this town number 18,000, or nearly 20 per cent of the number of inhabitants. This, too, despite the Swiss motorphobia.

Nebraska's Roads—While Nebraska has a small mileage of public roads relatively, it is said that in no other state are the natural roads so good. Even those wholly unimproved, owing to the peculiarities of the soil, are never so muddy as to interfere with traffic. Nebraska has 79,462 miles of public roads, of which, according to statistics gathered by the department of agriculture, only 17 miles are improved with stone and 6 miles with sand-clay mixture. With these insignificant exceptions, the roads of the state are built upon the natural prairies, the soil of which readily absorbs water in rainy weather and becomes quite solid in dry weather, so that there is not the need for road improvement which is felt in many parts of the country. There is, however, in Nebraska much road improvement in rounding up the natural soil and in preparing the roadbeds for traffic. In this way the taxes levied for the purpose are spent rather than in more costly methods, the results being such as to satisfy the public demand for highways. Nebraska has 1 mile of road to each square mile of territory, and 1 mile of road to every thirteen inhabitants. Taxation for road purposes is limited by law to 5 mills on the dollar of taxable property. County commissioners levy the tax to pay outstanding road warrants. In case 5 mills on the dollar is not sufficient the county board may annually make other levies for the purpose not to exceed 5 mills on the dollar of taxable property until the indebtedness incurred for good roads is paid.

American Motor League

OFFICERS

ISAAC B. POTTER, President.
Potter Building, New York.
CHARLES E. DURYEA, First Vice-
President, Reading, Pa.
JOHN A. HAWKINS, Second Vice-
President, Pittsburgh, Pa.
FRANK A. EGAN, Secretary,
132 Nassau St., New York.
FREDERICK B. HILL, Treasurer,
32 Binford St., Boston.
National Headquarters
Vanderbilt Building, New York

THIS LEAGUE

Is Now Collecting Route Infor-
mation

covering all automobile routes in the
important states and will publish road
books for motor car users as fast as
complete information is received.
The A. M. L. is the only organization
engaged in this work, and it invites
the co-operation of all persons
interested. For full information and
membership blanks address American
Motor League, Vanderbilt Building,
New York City.

"ROADSIDE TROUBLES"

A new supply of these little books has just been received from the bindery and a copy will go to each new member within the next 10 days. To supply the growing demand a new edition will be issued in the early spring. It may be fairly doubted whether the same amount of useful information for motorists has ever been condensed within a similar space in any other publication. The twenty chapters in Mr. Duryea's little handbook include a terse, practical reference to every probable trouble to be encountered by the user of a motor car, and are supplemented by a convenient index which enables the reader to find, in a moment, the very page and paragraph that contain the information needed in the emergency. It gives practical advice on the selection of a machine, describes the advantages and disadvantages of the different types, gives practical pointers on the distribution of weight and strength, shows the importance of careful design, explains reasons for the selection of a powerful motor, points out the need of large wearing surfaces and accessibility of different parts, tells why the flexible car is the most durable and explains how flexibility may be tested. It shows how and why simplicity of design should be aimed at, mentions the parts most likely to give trouble, describes the best way of cleaning the machine and tells why it should be kept clean. It describes in plain language the different methods of ignition and discusses their relative values; it devotes ample space to the subjects of magnetos and generators, tells how cells and batteries should be arranged, suggests practical methods for handling and storing gasoline so as to prevent waste, tells where to look for leaks, how valves should act when in proper adjustment and how to adjust them.

Not one-third of the contents of "Roadside Troubles" have been referred to above, and space here is not enough to contain further details. It is a practical book, written in masterly fashion by a man whose knowledge and experience have placed him in the front rank of technical writers in the world of motoring. Many thousands of copies have already been distributed among A. M. L. members and the second edition will be large enough to meet all immediate demands. "Road-

side Troubles" is given to each new member of the league until further notice. To all others the price is \$1 per copy. Even if you are a veteran motorist you can obtain information of great value in this book which Mr. Duryea has brought out.

"COUNTRY ROADS"

Before May 1 of this year the league will send out about 6,000 copies of a practical little book on the making and repair of country roads. There are sixty-four pages, bound in convenient form; sixty illustrations. Each member may have a copy on request. These books are printed for a purpose, and that purpose is clearly to encourage the improvement of the highways over which many of us travel, especially during the touring season. Whenever a copy can be placed to advantage in the hands of a county or township official who has to do with the public roads, it should be done. In this respect every league member may do missionary work. If you have anyone in your neighborhood who is interested send in the name.

RAILROAD RATES

Some weeks ago the league made announcement that reduced fares would be allowed to A. M. L. members who go to Chicago to attend the meetings of the league during the week of February 2-9. This was done after receiving from the Western Passenger Association a written notice that the application for reduced rates had been granted and that the concession would be duly announced. After the usual notices had been sent to different states word was received from the chairman of the Western Passenger Association that the arrangement had been cancelled. and wire, and from what can be gathered from these communications it appears that many persons who attended the show last year obtained railroad "certificates" from the ticket agents on purchasing their tickets to Chicago, and that this was done with the belief, on the part of these passengers, that the reduced rates were given to all persons who attended the show. On learning of their mistake, and spurred by the disappointment of not being able to

have their certificates validated at Chicago, these persons proceeded to make things as unpleasant as possible for the railroad officials by threats of legal proceedings, etc.; some going so far as to begin suit. Of course, the A. M. L. is in no sense responsible for these conditions. Its announcements have always stated specifically that these rates were for members only and that they had no reference whatever to the shows. The managers of the shows have, over and over again, made similar announcement. Without attempting to fix the responsibility for this misunderstanding it is sufficient to say here that the railway associations refuse to face a repetition of these troubles and have therefore denied the A. M. L. at this time the customary reduction. During the last week several thousand typewritten notices briefly stating these facts have been sent to our friends in different parts of the country so as to save as far as possible the resulting disappointment. The officials of the A. M. L. have faithfully attempted to serve the members in this matter as they have in all others, and they share keenly the disappointment that will now be generally felt in the matter of this expected reduction.

DANGER SIGNS

Many inquiries have been received by the secretary from members who are interested in the putting up of more danger signs. An estimate will be made of the number needed and arrangements will be concluded for the delivery of a new supply about May 1. By that time even the dirt roads will be in passable condition in many localities and the work of putting up signs can be taken up. On this subject further announcement will soon be made by the secretary of the American Motor League. In the meantime members of the league should not lose any chance to work for the cause of good roads and at the same time interest others.

LEAGUE MEMBERSHIP

There is no initiation fee. It is the duty of every self-respecting motorist to join the A. M. L., but the league charges nothing for the performance of a duty. Dues are \$2 a year. Old members and new ones pay the same. Printed matter sent on request by the American Motor League, Vanderbilt building, New York.